



SEQUENCE LISTING <110> Terman, David S <120>
COMPOSITIONS AND METHODS FOR TREATMENT OF NEOPLASTIC DISEASE <130>
870759 <140> US 09/870,759 <141> 2001-05-30 <150> US 60/208,128
<151> 2000-05-30 <160> 166 <170> PatentIn version 3.1 <210> 1
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atgtatggtg gtgtaactga gcataatgga aaccaattag ataaatatag aagtattact 480
gttcgggtat ttgaagatgg taaaaattta ttatcttttg acgtacaaac taataagaaa 540
aaggtgactg ctcaagaatt agattaccta actcgtcact atttggtgaa aaataaaaaa 600
ctctatgaat ttaacaactc gccttatgaa acgggatata ttaaatttat agaaaatgag 660
aatagctttt ggtatgacat gatgcctgca ccaggagata aatttgacca atctaaatat 720
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gcagagagtc aaccagatcc taaaccagat gagttgcaca aatcgagtaa attcactggt 180
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aatgatatta attcgcatca aactgacaaa cgaaaaactt gtatgtatgg tgggtgaact 480
gagcataatg gaaaccaatt agataaatat agaagtatta ctgttcgggt atttgaagat 540
ggtaaaaatt tattatcttt tgacgtacaa actaataaga aaaaggtgac tgctcaagaa 600
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195

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Ile Glu Phe Asp Ser Ser Asp Gly Ser Lys Val Ser Tyr Asp Leu Phe
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Asp Val Lys Gly Asp Phe Pro Glu Lys Gln Leu Arg Ile Tyr Ser Asp
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Asn Lys Thr Leu Ser Thr Glu His Leu His Ile Asp Ile Tyr Leu Tyr
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 aca aca agt cca ctt gta aat ggt agc gag aaa agc gaa gaa ata aat 96
 Thr Thr Ser Pro Leu Val Asn Gly Ser Glu Lys Ser Glu Glu Ile Asn
 20 25 30
 gaa aaa gat ttg cga aaa aag tct gaa tta caa aga aat gct tta agc 144
 Glu Lys Asp Leu Arg Lys Lys Ser Glu Leu Gln Arg Asn Ala Leu Ser
 35 40 45
 aat ctt agg caa att tat tat tat aat gaa aaa gct ata act gaa aac 192
 Asn Leu Arg Gln Ile Tyr Tyr Tyr Asn Glu Lys Ala Ile Thr Glu Asn
 50 55 60
 aaa gag agt gat gat cag ttt tta gag aat act ttg tta ttt aaa ggt 240
 Lys Glu Ser Asp Asp Gln Phe Leu Glu Asn Thr Leu Leu Phe Lys Gly
 65 70 75 80
 ttt ttc aca ggt cat cca tgg tat aac gat tta tta gta gat ctt ggt 288
 Phe Phe Thr Gly His Pro Trp Tyr Asn Asp Leu Leu Val Asp Leu Gly
 85 90 95
 tca aaa gat gct act aat aaa tat aaa ggg aaa aaa gta gac tta tat 336
 Ser Lys Asp Ala Thr Asn Lys Tyr Lys Gly Lys Lys Val Asp Leu Tyr
 100 105 110
 ggt gct tat tat gga tat caa tgt gct gga ggc aca cca aat aaa aca 384
 Gly Ala Tyr Tyr Gly Tyr Gln Cys Ala Gly Gly Thr Pro Asn Lys Thr
 115 120 125
 gca tgt atg tac ggg ggt gta aca tta cat gat aat aac cga ttg acc 432
 Ala Cys Met Tyr Gly Gly Val Thr Leu His Asp Asn Asn Arg Leu Thr
 130 135 140
 gaa gaa aaa aaa gta cca att aac ttg tgg ata gac gga aaa caa act 480

aca tta tcc aca gag cac ctt cat att gac atc tat tta tat gaa aag 1065
Thr Leu Ser Thr Glu His Leu His Ile Asp Ile Tyr Leu Tyr Glu Lys
245 250 255

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Lys Glu Lys Glu Leu His Lys Lys Ser Glu Leu Ser Ser Thr Ala Leu
35 40 45

Asn Asn Met Lys His Ser Tyr Ala Asp Lys Asn Pro Ile Ile Gly Glu
50 55 60

Asn Lys Ser Thr Gly Asp Gln Phe Leu Glu Asn Thr Leu Leu Tyr Lys
65 70 75 80

Lys Phe Phe Thr Asp Leu Ile Asn Phe Glu Asp Leu Leu Ile Asn Phe
85 90 95

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115 120 125

Thr Ala Cys Thr Tyr Gly Gly Val Thr Pro His Glu Gly Asn Lys Leu
130 135 140

Lys Glu Arg Lys Lys Ile Pro Ile Asn Leu Trp Ile Asn Gly Val Gln
145 150 155 160

Lys Glu Val Ser Leu Asp Lys Val Gln Thr Asp Lys Lys Asn Val Thr
165 170 175

Val Gln Glu Leu Asp Ala Gln Ala Arg Arg Tyr Leu Gln Lys Asp Leu
180 185 190

Lys Leu Tyr Asn Asn Asp Thr Leu Gly Gly Lys Ile Gln Arg Gly Lys

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tct cct tta aac gtt aaa gcc aat gaa aac att gat tca gta aaa gag	393
Ser Pro Leu Asn Val Lys Ala Asn Glu Asn Ile Asp Ser Val Lys Glu	
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aaa gaa ttg cat aaa aaa tct gaa tta agt agt acc gcg cta aat aat	441
Lys Glu Leu His Lys Lys Ser Glu Leu Ser Ser Thr Ala Leu Asn Asn	
35 40 45 50	
atg aaa cat tct tat gca gat aaa aat cca ata ata gga gaa aat aaa	489
Met Lys His Ser Tyr Ala Asp Lys Asn Pro Ile Ile Gly Glu Asn Lys	
55 60 65	
agt aca gga gat caa ttt tta gaa aat act ttg ctt tac aaa aaa ttt	537
Ser Thr Gly Asp Gln Phe Leu Glu Asn Thr Leu Leu Tyr Lys Lys Phe	
70 75 80	
ttt act gac ctt atc aat ttt gaa gat tta tta ata aac ttc aat tca	585
Phe Thr Asp Leu Ile Asn Phe Glu Asp Leu Leu Ile Asn Phe Asn Ser	
85 90 95	
aaa gaa atg gct caa cat ttc aaa tct aaa aat gta gat gtt tac cct	633
Lys Glu Met Ala Gln His Phe Lys Ser Lys Asn Val Asp Val Tyr Pro	
100 105 110	
ata aga tat agc att aat tgt tat ggt ggt gaa ata gat agg act gct	681
Ile Arg Tyr Ser Ile Asn Cys Tyr Gly Gly Glu Ile Asp Arg Thr Ala	
115 120 125 130	
tgt aca tat gga ggt gtc act cca cac gaa ggt aat aaa tta aaa gaa	729
Cys Thr Tyr Gly Gly Val Thr Pro His Glu Gly Asn Lys Leu Lys Glu	
135 140 145	
cga aaa aaa ata cca atc aat ttg tgg ata aat ggt gta caa aaa gaa	777
Arg Lys Lys Ile Pro Ile Asn Leu Trp Ile Asn Gly Val Gln Lys Glu	
150 155 160	
gtt tct tta gat aaa gtt caa aca gat aaa aaa aat gtt acc gta caa	825
Val Ser Leu Asp Lys Val Gln Thr Asp Lys Lys Asn Val Thr Val Gln	
165 170 175	
gaa tta gat gca caa gca agg cgc tat ttg caa aag gat tta aaa ttg	873
Glu Leu Asp Ala Gln Ala Arg Arg Tyr Leu Gln Lys Asp Leu Lys Leu	
180 185 190	
tat aat aat gat act ctc gga gga aaa ata cag cgc gga aaa ata gag	921
Tyr Asn Asn Asp Thr Leu Gly Gly Lys Ile Gln Arg Gly Lys Ile Glu	
195 200 205 210	
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Phe Asp Ser Ser Asp Gly Ser Lys Val Ser Tyr Asp Leu Phe Asp Val	
215 220 225	
aag ggt gat ttt ccc gaa aaa caa tta cga ata tac agt gat aat aaa	1017
Lys Gly Asp Phe Pro Glu Lys Gln Leu Arg Ile Tyr Ser Asp Asn Lys	
230 235 240	

Asn Glu Gly Leu Ala Lys Lys Tyr Lys Asp Glu Val Val Asp Val Tyr
 100 105 110

Gly Ser Asn Tyr Tyr Val Asn Cys Tyr Phe Ser Ser Lys Asp Asn Val
 115 120 125

Gly Lys Val Thr Gly Gly Lys Thr Cys Met Tyr Gly Gly Ile Thr Lys
 130 135 140

His Glu Gly Asn His Phe Asp Asn Gly Asn Leu Gln Asn Val Leu Ile
 145 150 155 160

Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln Thr
 165 170 175

Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn
 180 185 190

Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro Tyr
 195 200 205

Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe Trp
 210 215 220

Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys Tyr
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 tgaatgtatt gtctacataa tcggtgtaac aataatat atccgaaaga ttaaagtact 240
 ctataaaaga atcatttaaa ggtgctcaaa tttattgaaa aaaggtggaa t atg aaa 297
 Met Lys
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Arg Val Tyr Glu Asn Lys Arg Asn Thr Ile Ser Phe Glu Val Gln Thr
 165 170 175
 gat aag aaa agt gta aca gct caa gaa cta gac ata aaa gct agg aat 693
 Asp Lys Lys Ser Val Thr Ala Gln Glu Leu Asp Ile Lys Ala Arg Asn
 180 185 190
 ttt tta att aat aaa aaa aat ttg tat gag ttt aac agt tca cca tat 741
 Phe Leu Ile Asn Lys Lys Asn Leu Tyr Glu Phe Asn Ser Ser Pro Tyr
 195 200 205
 gaa aca gga tat ata aaa ttt att gaa aat aac ggc aat act ttt tgg 789
 Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Asn Gly Asn Thr Phe Trp
 210 215 220
 tat gat atg atg cct gca cca ggc gat aag ttt gac caa tct aaa tat 837
 Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys Tyr
 225 230 235 240
 tta atg atg tac aac gac aat aaa acg gtt gat tct aaa agt gtg aag 885
 Leu Met Met Tyr Asn Asp Asn Lys Thr Val Asp Ser Lys Ser Val Lys
 245 250 255
 ata gaa gtc cac ctt aca aca aag aat gga taa tggttaatccg attttgatat 938
 Ile Glu Val His Leu Thr Thr Lys Asn Gly
 260 265
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Pro Thr Pro Asp Glu Leu His Lys Ala Ser Lys Phe Thr Gly Leu Met
 35 40 45

Glu Asn Met Lys Val Leu Tyr Asp Asp His Tyr Val Ser Ala Thr Lys
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Val Lys Ser Val Asp Lys Phe Leu Ala His Asp Leu Ile Tyr Asn Ile
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Ser Asp Lys Lys Leu Lys Asn Tyr Asp Lys Val Lys Thr Glu Leu Leu
 85 90 95

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20 25 30

Pro Lys Pro Asp Glu Leu His Lys Ser Ser Lys Phe Thr Gly Leu Met
35 40 45

Glu Asn Met Lys Val Leu Tyr Asp Asp Asn His Val Ser Ala Ile Asn
50 55 60

Val Lys Ser Ile Asp Gln Phe Leu Tyr Phe Asp Leu Ile Tyr Ser Ile
65 70 75 80

Lys Asp Thr Lys Leu Gly Asn Tyr Asp Asn Val Arg Val Glu Phe Lys
85 90 95

Asn Lys Asp Leu Ala Asp Lys Tyr Lys Asp Lys Tyr Val Asp Val Phe
100 105 110

Gly Ala Asn Tyr Tyr Tyr Gln Cys Tyr Phe Ser Lys Lys Thr Asn Asp
115 120 125

Ile Asn Ser His Gln Thr Asp Lys Arg Lys Thr Cys Met Tyr Gly Gly
130 135 140

Val Thr Glu His Asn Gly Asn Gln Leu Asp Lys Tyr Arg Ser Ile Thr
145 150 155 160

Val Arg Val Phe Glu Asp Gly Lys Asn Leu Leu Ser Phe Asp Val Gln
165 170 175

Thr Asn Lys Lys Lys Val Thr Ala Gln Glu Leu Asp Tyr Leu Thr Arg
180 185 190

His Tyr Leu Val Lys Asn Lys Lys Leu Tyr Glu Phe Asn Asn Ser Pro
195 200 205

Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Glu Asn Ser Phe Trp
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Gln Thr Asn Lys Lys Lys Val Thr Ala Gln Glu Leu Asp Tyr Leu Thr			
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Arg His Tyr Leu Val Lys Asn Lys Lys Leu Tyr Glu Phe Asn Asn Ser			
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Pro Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Glu Asn Glu Asn Ser Phe			
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Trp Tyr Asp Met Met Pro Ala Pro Gly Asp Lys Phe Asp Gln Ser Lys			
	225	230	235
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Tyr Leu Met Met Tyr Asn Asp Asn Lys Met Val Asp Ser Lys Asp Val			
	240	245	250
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Lys Ile Glu Val Tyr Leu Thr Thr Lys Lys Lys			
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 210 215 220

Ala Gln Gly Gln Asn Ser Asn Thr Leu Leu Arg Ile Tyr Arg Asp Asn
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Lys Thr Ile Asn Ser Glu Asn Met His Ile Asp Ile Tyr Leu Tyr Thr
 245 250 255

Ser

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 tataacatat atttaaagtg tatctagata ctttttggga atgttgata aaggagataa 240
 aaa atg tat aag aga tta ttt att tca cat gta att ttg ata ttc gca 288
 Met Tyr Lys Arg Leu Phe Ile Ser His Val Ile Leu Ile Phe Ala
 1 5 10 15
 ctg ata tta gtt att tct aca ccc aac gtt tta gca gag agt caa cca 336
 Leu Ile Leu Val Ile Ser Thr Pro Asn Val Leu Ala Glu Ser Gln Pro
 20 25 30
 gat cct aaa cca gat gag ttg cac aaa tcg agt aaa ttc act ggt ttg 384
 Asp Pro Lys Pro Asp Glu Leu His Lys Ser Ser Lys Phe Thr Gly Leu
 35 40 45
 atg gaa aat atg aaa gtt ttg tat gat gat aat cat gta tca gca ata 432
 Met Glu Asn Met Lys Val Leu Tyr Asp Asp Asn His Val Ser Ala Ile
 50 55 60
 aac gtt aaa tct ata gat caa ttt cta tac ttt gac tta ata tat tct 480
 Asn Val Lys Ser Ile Asp Gln Phe Leu Tyr Phe Asp Leu Ile Tyr Ser
 65 70 75
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 Ile Lys Asp Thr Lys Leu Gly Asn Tyr Asp Asn Val Arg Val Glu Phe
 80 85 90 95
 aaa aac aaa gat tta gct gat aaa tac aaa gat aaa tac gta gat gtg 576
 Lys Asn Lys Asp Leu Ala Asp Lys Tyr Lys Asp Lys Tyr Val Asp Val
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 Phe Gly Ala Asn Tyr Tyr Tyr Gln Cys Tyr Phe Ser Lys Lys Thr Asn

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 35 40 45

Asn Leu Lys Gln Ile Tyr Tyr Tyr Asn Glu Lys Ala Lys Thr Glu Asn
 50 55 60

Lys Glu Ser His Asp Gln Phe Leu Gln His Thr Ile Leu Phe Lys Gly
 65 70 75 80

Phe Phe Thr Asn His Ser Trp Tyr Asn Asp Leu Leu Val Asp Phe Asp
 85 90 95

Ser Lys Asp Ile Val Asp Lys Tyr Lys Gly Lys Lys Val Asp Leu Tyr
 100 105 110

Gly Ala Tyr Tyr Gly Tyr Gln Cys Ala Gly Gly Thr Pro Asn Lys Thr
 115 120 125

Ala Cys Met Tyr Gly Gly Val Thr Leu His Asp Asn Asn Arg Leu Thr
 130 135 140

Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Leu Asp Gly Lys Gln Asn
 145 150 155 160

Thr Val Pro Leu Glu Thr Val Lys Thr Asn Lys Lys Asn Val Thr Val
 165 170 175

Gln Glu Leu Asp Leu Gln Ala Arg Arg Tyr Leu Gln Glu Lys Tyr Asn
 180 185 190

Leu Tyr Asn Ser Asp Val Phe Asp Gly Lys Val Gln Arg Gly Leu Ile
 195 200 205

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tta tta gta gat ttt gat tca aag gat att gtt gat aaa tat aaa ggg Leu Leu Val Asp Phe Asp Ser Lys Asp Ile Val Asp Lys Tyr Lys Gly 95 100 105	579
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aga ata tat aga gat aat aaa acg att aac tct gaa aac atg cat att Arg Ile Tyr Arg Asp Asn Lys Thr Ile Asn Ser Glu Asn Met His Ile 235 240 245 250	1011
gat ata tat tta tat aca agt taaacatggg agttttgaac acgtaatggt Asp Ile Tyr Leu Tyr Thr Ser 255	1062
cagattatta tgaaccgaga ataatctgaa agttttacaag cagtaaaaaa agtatatgtg	1122
ctataatatg ctttgagcaa gttggataga tgggtggctat ctgagtataa ggaggtgggtg	1182
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aatgttgcag tttggtttat tccttattgc attgataggt ctagtaatca agcttattga	1302

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 aataaaatgg ttgattctaa agatgtgaag attgaagttt atcttacgac aaagaaaaag 840
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atatatgtat gtataagtaa ataatgataa ttctataatt attgtatata actaataatt 180

acttcgacaa aaataatcta ttatccaaat attttagata ataaaaagtt tgtatggaat 240

tatgctttag aggtgagcaa a atg aaa aaa aca gca ttt ata cta ctt tta 291
 Met Lys Lys Thr Ala Phe Ile Leu Leu Leu
 1 5 10

ttc att gcc cta acg tgg aca aca agt cca ctt gta aat ggt agc gag 339
 Phe Ile Ala Leu Thr Trp Thr Thr Ser Pro Leu Val Asn Gly Ser Glu
 15 20 25

aaa agc gaa gaa ata aat gaa aaa gat ttg cga aaa aag tct gaa ttg 387
 Lys Ser Glu Glu Ile Asn Glu Lys Asp Leu Arg Lys Lys Ser Glu Leu
 30 35 40

cag gga gca gct tta ggc aat ctt aaa caa atc tat tat tac aat gaa 435
 Gln Gly Ala Ala Leu Gly Asn Leu Lys Gln Ile Tyr Tyr Tyr Asn Glu
 45 50 55

65				70				75				80			
Ser	Ile	Ser	Leu	Ile 85	Ile	Phe	Pro	Ser	Pro 90	Tyr	Tyr	Ser	Pro	Ala 95	Phe
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Gln	His	Thr 115	Ser	Glu	Gly	Thr	Tyr 120	Ile	His	Phe	Gln	Ile 125	Ser	Gly	Val
Thr	Asn 130	Thr	Glu	Lys	Leu	Pro 135	Thr	Pro	Ile	Glu	Leu 140	Pro	Leu	Lys	Val
Lys 145	Val	His	Gly	Lys	Asp 150	Ser	Pro	Leu	Lys	Tyr 155	Gly	Pro	Lys	Phe	Asp 160
Lys	Lys	Gln	Leu	Ala 165	Ile	Ser	Thr	Leu	Asp 170	Phe	Glu	Ile	Arg	His 175	Gln
Leu	Thr	Gln	Ile 180	His	Gly	Leu	Tyr	Arg 185	Ser	Ser	Asp	Lys	Thr 190	Gly	Gly
Tyr	Trp	Lys 195	Ile	Thr	Met	Asn	Asp 200	Gly	Ser	Thr	Tyr	Gln 205	Ser	Asp	Leu
Ser	Lys 210	Lys	Phe	Glu	Tyr	Asn 215	Thr	Glu	Lys	Pro	Pro 220	Ile	Asn	Ile	Asp
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                        Met Glu Asn Asn Lys Glu Val Leu Lys Lys Met
                        1          5          10

gta ttt ttt gtt tta atg aaa ttt ctt gga cta aca atc ttg cca aaa 159
Val Phe Phe Val Leu Met Lys Phe Leu Gly Leu Thr Ile Leu Pro Lys
                        15          20          25

ggt att tgt tca aca aga ccc aag ccc agc caa tta caa aga tct aat 207
Gly Ile Cys Ser Thr Arg Pro Lys Pro Ser Gln Leu Gln Arg Ser Asn
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act aaa aaa agc caa cat act agc gaa gga act tat atc cat ttc caa			387
Thr Lys Lys Ser Gln His Thr Ser Glu Gly Thr Tyr Ile His Phe Gln			
110	115	120	
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Ile Ser Gly Val Thr Asn Thr Glu Lys Leu Pro Thr Pro Ile Glu Leu			
125	130	135	140
cct tta aaa gtt aag gtt cat ggt aaa gat agc ccc tta aag tat ggg			483
Pro Leu Lys Val Lys Val His Gly Lys Asp Ser Pro Leu Lys Tyr Gly			
	145	150	155
cca aag ttc gat aaa aaa caa tta gct ata tca act tta gac ttt gaa			531
Pro Lys Phe Asp Lys Lys Gln Leu Ala Ile Ser Thr Leu Asp Phe Glu			
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Ile Arg His Gln Leu Thr Gln Ile His Gly Leu Tyr Arg Ser Ser Asp			
	175	180	185
aaa acg ggt ggt tat tgg aaa ata aca atg aat gac gga tcc aca tat			627
Lys Thr Gly Gly Tyr Trp Lys Ile Thr Met Asn Asp Gly Ser Thr Tyr			
190	195	200	
caa agt gat tta tct aaa aag ttt gaa tac aat act gaa aaa cca cct			675
Gln Ser Asp Leu Ser Lys Lys Phe Glu Tyr Asn Thr Glu Lys Pro Pro			
205	210	215	220
ata aat att gat gaa ata aaa act ata gaa gca gaa att aat taa			720
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Gln Ile Ile Lys Thr Ala Lys Ala Ser Thr Asn Asp Asn Ile Lys Asp
35 40 45

Leu Leu Asp Trp Tyr Ser Ser Gly Ser Asp Thr Phe Thr Asn Ser Glu
50 55 60

Val Leu Asp Asn Ser Leu Gly Ser Met Arg Ile Lys Asn Thr Asp Gly

Ala Cys Met Tyr Gly Gly Val Thr Leu His Asp Asn Asn Arg Leu Thr
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Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Ile Asp Gly Lys Gln Thr
145 150 155 160

Thr Val Pro Ile Asp Lys Val Lys Thr Ser Lys Lys Glu Val Thr Val
165 170 175

Gln Glu Leu Asp Leu Gln Ala Arg His Tyr Leu His Gly Lys Phe Gly
180 185 190

Leu Tyr Asn Ser Asp Ser Phe Gly Gly Lys Val Gln Arg Gly Leu Ile
195 200 205

Val Phe His Ser Ser Glu Gly Ser Thr Val Ser Tyr Asp Leu Phe Asp
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Lys Thr Ile Asn Ser Glu Asn Leu
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Ser Pro Leu Leu Leu Ala Thr Thr Ala Thr Asp Phe Thr Pro Val Pro
15 20 25

tta tca tct aat caa ata atc aaa act gca aaa gca tct aca aac gat 147
Leu Ser Ser Asn Gln Ile Ile Lys Thr Ala Lys Ala Ser Thr Asn Asp
30 35 40

aat ata aag gat ttg cta gac tgg tat agt agt ggg tct gac act ttt 195
Asn Ile Lys Asp Leu Leu Asp Trp Tyr Ser Ser Gly Ser Asp Thr Phe
45 50 55 60

aca aat agt gaa gtt tta gat aat tcc tta gga tct atg cgt ata aaa 243
Thr Asn Ser Glu Val Leu Asp Asn Ser Leu Gly Ser Met Arg Ile Lys
65 70 75

aac aca gat ggc agc atc agc ttg ata att ttt ccg agt cct tat tat 291
Asn Thr Asp Gly Ser Ile Ser Leu Ile Ile Phe Pro Ser Pro Tyr Tyr

Glu Glu Lys Lys Val Pro Ile Asn Leu Trp Ile Asp Gly Lys Gln Thr
 145 150 155 160
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 Thr Val Pro Ile Asp Lys Val Lys Thr Ser Lys Lys Glu Val Thr Val
 165 170 175
 caa gag cta gat ctt cag gca agg cat tat tta cac gga aaa ttt ggt 576
 Gln Glu Leu Asp Leu Gln Ala Arg His Tyr Leu His Gly Lys Phe Gly
 180 185 190
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 Leu Tyr Asn Ser Asp Ser Phe Gly Gly Lys Val Gln Arg Gly Leu Ile
 195 200 205
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 Val Phe His Ser Ser Glu Gly Ser Thr Val Ser Tyr Asp Leu Phe Asp
 210 215 220
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 Ala Gln Gly Gln Tyr Pro Asp Thr Leu Leu Arg Ile Tyr Arg Asp Asn
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Glu Lys Asp Leu Arg Lys Lys Ser Glu Leu Gln Arg Asn Ala Leu Ser
 35 40 45

Asn Leu Arg Gln Ile Tyr Tyr Tyr Asn Glu Lys Ala Ile Thr Glu Asn
 50 55 60

Lys Glu Ser Asp Asp Gln Phe Leu Glu Asn Thr Leu Leu Phe Lys Gly
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Phe Phe Thr Gly His Pro Trp Tyr Asn Asp Leu Leu Val Asp Leu Gly
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Arg Pro Lys Pro Ser Gln Leu Gln Arg Ser Asn Leu Val Lys Thr Phe
35 40 45

Lys Ile Tyr Ile Phe Phe Met Arg Val Thr Leu Val Thr His Glu Asn
50 55 60

Val Lys Ser Val Asp Gln Leu Leu Ser His Asp Leu Ile Tyr Asn Val
65 70 75 80

Ser Gly Pro Asn Tyr Asp Lys Leu Lys Thr Glu Leu Lys Asn Gln Glu
85 90 95

Met Ala Thr Leu Phe Lys Asp Lys Asn Val Asp Ile Tyr Gly Val Glu
100 105 110

Tyr Tyr His Leu Cys Tyr Leu Cys Glu Asn Ala Glu Arg Ser Ala Cys
115 120 125

Leu Tyr Gly Gly Val Thr Asn His Glu Gly Asn His Leu Glu Ile Pro
130 135 140

Lys Lys Ile Val Val Lys Val Ser Ile Asp Gly Ile Gln Ser Leu Ser
145 150 155 160

Phe Asp Ile Glu Gln Ile Lys Asn Gly Asn Cys Ser Arg Ile Ser Tyr
165 170 175

Thr Val Arg Lys Tyr Leu Thr Asp Asn Lys Gln Leu Tyr Thr Asn Gly
180 185 190

Pro Ser Lys Tyr Glu Thr Gly Tyr Ile Lys Phe Ile Pro Lys Asn Lys
195 200 205

Glu Ser Phe Trp Phe Asp Phe Phe Pro Glu Pro Glu Phe Thr Gln Ser
210 215 220

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gaa ttt act caa tct aaa tat ctt atg ata tat aaa gat aat gaa acg Glu Phe Thr Gln Ser Lys Tyr Leu Met Ile Tyr Lys Asp Asn Glu Thr 220 225 230 235	783
ctt gac tca aac aca agc caa att gaa gtc tac cta aca acc aag taa Leu Asp Ser Asn Thr Ser Gln Ile Glu Val Tyr Leu Thr Thr Lys 240 245 250	831
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ttaatgtaaa aacgctcatt tgatgagcgg ttttgtctta tctaaaggag ctttacctcc	951
taatgctgca aaattttaaa tgttggattt ttgtatttgt cattgtattt gatgggtaat	1011
cccatttttc gacagacatc	1031

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Ser Gln Ile Glu Val Tyr Leu Thr Thr Lys
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caggctcgct tttgcgggcc ttttttatat ctgcgccggg tctggtgctg attacttcag 180

ccaaaaggaa cacctgtat atg aag tgt ata tta ttt aaa tgg gta ctg tgc 232
 Met Lys Cys Ile Leu Phe Lys Trp Val Leu Cys
 1 5 10

ctg tta ctg ggt ttt tct tcg gta tcc tat tcc cgg gag ttt acg ata 280
 Leu Leu Leu Gly Phe Ser Ser Val Ser Tyr Ser Arg Glu Phe Thr Ile

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Thr	Glu	Ile	Ser	Thr	Pro	Leu	Glu	His	Ile	Ser	Gln	Gly	Thr	Thr	Ser					
	45					50					55									
gtg	tct	gtt	att	aac	cac	acc	cca	ccg	ggc	agt	tat	ttt	gct	gtg	gat	424				
Val	Ser	Val	Ile	Asn	His	Thr	Pro	Pro	Gly	Ser	Tyr	Phe	Ala	Val	Asp					
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Ile	Arg	Gly	Leu	Asp	Val	Tyr	Gln	Ala	Arg	Phe	Asp	His	Leu	Arg	Leu					
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Thr	Asn	Thr	Phe	Tyr	Arg	Phe	Ser	Asp	Phe	Thr	His	Ile	Ser	Val	Pro					
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	125					130					135									
caa	cgt	gtc	gca	gcg	ctg	gaa	cgt	tcc	gga	atg	caa	atc	agt	cgt	cac	664				
Gln	Arg	Val	Ala	Ala	Leu	Glu	Arg	Ser	Gly	Met	Gln	Ile	Ser	Arg	His					
140					145				150					155						
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Ser	Leu	Val	Ser	Ser	Tyr	Leu	Ala	Leu	Met	Glu	Phe	Ser	Gly	Asn	Thr					
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Met	Thr	Arg	Asp	Ala	Ser	Arg	Ala	Val	Leu	Arg	Phe	Val	Thr	Val	Thr					
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	205					210					215									
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Gly	Glu	Asp	Gly	Val	Arg	Val	Gly	Arg	Ile	Ser	Phe	Asn	Asn	Ile	Ser					
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Ile Thr Gly Asp Arg Pro Val Ile Lys Ile Asn Asn Thr Leu Trp Glu			
285	290	295	
agt aat aca gct gca gcg ttt ctg aac aga aag tca cag ttt tta tat			1144
Ser Asn Thr Ala Ala Ala Phe Leu Asn Arg Lys Ser Gln Phe Leu Tyr			
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aca acg ggt aaa taa aggagttaag catgaagaag atgtttatgg cggttttatt			1199
Thr Thr Gly Lys			
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Gln Ser Tyr Val Ser Ser Leu Asn Ser Ile Arg Thr Glu Ile Ser Thr			
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Pro Leu Glu His Ile Ser Gln Gly Thr Thr Ser Val Ser Val Ile Asn			
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His Thr Pro Pro Gly Ser Tyr Phe Ala Val Asp Ile Arg Gly Leu Asp			
65	70	75	80
Val Tyr Gln Ala Arg Phe Asp His Leu Arg Leu Ile Ile Glu Gln Asn			
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Asn Leu Tyr Val Ala Gly Phe Val Asn Thr Ala Thr Asn Thr Phe Tyr			

100

105

110

Arg Phe Ser Asp Phe Thr His Ile Ser Val Pro Gly Val Thr Thr Val
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Leu Glu Arg Ser Gly Met Gln Ile Ser Arg His Ser Leu Val Ser Ser
 145 150 155 160

Tyr Leu Ala Leu Met Glu Phe Ser Gly Asn Thr Met Thr Arg Asp Ala
 165 170 175

Ser Arg Ala Val Leu Arg Phe Val Thr Val Thr Ala Glu Ala Leu Arg
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Phe Arg Gln Ile Gln Arg Glu Phe Arg Gln Ala Leu Ser Glu Thr Ala
 195 200 205

Pro Val Tyr Thr Met Thr Pro Gly Asp Val Asp Leu Thr Leu Asn Trp
 210 215 220

Gly Arg Ile Ser Asn Val Leu Pro Glu Tyr Arg Gly Glu Asp Gly Val
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Arg Val Gly Arg Ile Ser Phe Asn Asn Ile Ser Ala Ile Leu Gly Thr
 245 250 255

Val Ala Val Ile Leu Asn Cys His His Gln Gly Ala Arg Ser Val Arg
 260 265 270

Ala Val Asn Glu Glu Ser Gln Pro Glu Cys Gln Ile Thr Gly Asp Arg
 275 280 285

Pro Val Ile Lys Ile Asn Asn Thr Leu Trp Glu Ser Asn Thr Ala Ala
 290 295 300

Ala Phe Leu Asn Arg Lys Ser Gln Phe Leu Tyr Thr Thr Gly Lys
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Tyr Gln Thr Ile
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gatattatatt atatgataat agttcatttt gtatttttgt tttttttgat attctcacct 180
gcttagttac aataaatcaa ttctatcgct gtatggtata gactgtttta ttatatattt 240
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tactaaatta gaaaacaagt ttcactttca actattgcat ctttaattaa tgggtcaagg 360
gatttcaaata gctcggtttgt ggccagttat acctcaaata actcaagttg ttgagcacag 420
ccaacgcaca tgcagtttga cgtatgacag gtatgcttta tttcatttaa att atg 476
Met
1

atg gtt ttc cag cca atc agt gag ttt ctc ttg ata agg aat gcg gga 524
Met Val Phe Gln Pro Ile Ser Glu Phe Leu Leu Ile Arg Asn Ala Gly
5 10 15

atg tct atg tat ttt aat aaa ata att tca ttt aat att att tca cga 572
Met Ser Met Tyr Phe Asn Lys Ile Ile Ser Phe Asn Ile Ile Ser Arg
20 25 30

ata gtt att tgt atc ttt ttg ata tgt gga atg ttc atg gct ggg gct 620
Ile Val Ile Cys Ile Phe Leu Ile Cys Gly Met Phe Met Ala Gly Ala
35 40 45

tca gaa aaa tat gat gct aac gca ccg caa cag gtc cag cct tat tct 668
Ser Glu Lys Tyr Asp Ala Asn Ala Pro Gln Gln Val Gln Pro Tyr Ser
50 55 60 65

gtc tct tca tct gca ttt gaa aat ctc cat cct aat aat gaa atg gag 716
Val Ser Ser Ser Ala Phe Glu Asn Leu His Pro Asn Asn Glu Met Glu
70 75 80

agt tca atc aat ccc ttt tcc gca tcg gat aca gaa aga aat gct gca 764
Ser Ser Ile Asn Pro Phe Ser Ala Ser Asp Thr Glu Arg Asn Ala Ala
85 90 95

ata ata gat cgc gcc aat aag gag cag gag act gaa gcg gtg aat aag 812

Ile Ile Asp Arg Ala Asn Lys Glu Gln Glu Thr Glu Ala Val Asn Lys	
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atg ata agc acc ggg gcc agg tta gct gca tca ggc agg gca tct gat	860
Met Ile Ser Thr Gly Ala Arg Leu Ala Ala Ser Gly Arg Ala Ser Asp	
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Val Ala His Ser Met Val Gly Asp Ala Val Asn Gln Glu Ile Lys Gln	
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Trp Leu Asn Arg Phe Gly Thr Ala Gln Val Asn Leu Asn Phe Asp Lys	
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aat ttt tcg cta aaa gaa agc tct ctt gat tgg ctg gct cct tgg tat	1004
Asn Phe Ser Leu Lys Glu Ser Ser Leu Asp Trp Leu Ala Pro Trp Tyr	
165 170 175	
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Asp Ser Ala Ser Phe Leu Phe Phe Ser Gln Leu Gly Ile Arg Asn Lys	
180 185 190	
gac agc cgc aac aca ctt aac ctt ggc gtc ggg ata cgt aca ttg gag	1100
Asp Ser Arg Asn Thr Leu Asn Leu Gly Val Gly Ile Arg Thr Leu Glu	
195 200 205	
aac ggt tgg ctg tac gga ctt aat act ttt tat gat aat gat ttg acc	1148
Asn Gly Trp Leu Tyr Gly Leu Asn Thr Phe Tyr Asp Asn Asp Leu Thr	
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ggc cac aac cac cgt atc ggt ctt ggt gcc gag gcc tgg acc gat tat	1196
Gly His Asn His Arg Ile Gly Leu Gly Ala Glu Ala Trp Thr Asp Tyr	
230 235 240	
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Leu Gln Leu Ala Ala Asn Gly Tyr Phe Arg Leu Asn Gly Trp His Ser	
245 250 255	
tcg cgt gat ttc tcc gac tat aaa gag cgc cca gcc act ggg ggg gat	1292
Ser Arg Asp Phe Ser Asp Tyr Lys Glu Arg Pro Ala Thr Gly Gly Asp	
260 265 270	
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Leu Arg Ala Asn Ala Tyr Leu Pro Ala Leu Pro Gln Leu Gly Gly Lys	
275 280 285	
ttg atg tat gag caa tac acc ggt gag cgt gtt gct tta ttt ggt aaa	1388
Leu Met Tyr Glu Gln Tyr Thr Gly Glu Arg Val Ala Leu Phe Gly Lys	
290 295 300 305	
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Asp Asn Leu Gln Arg Asn Pro Tyr Ala Val Thr Ala Gly Ile Asn Tyr	
310 315 320	
acc ccc gtg cct cta ctc act gtc ggg gta gat cag cgt atg ggg aaa	1484
Thr Pro Val Pro Leu Leu Thr Val Gly Val Asp Gln Arg Met Gly Lys	
325 330 335	
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Ser	Ser	Lys	His	Glu	Thr	Gln	Trp	Asn	Leu	Gln	Met	Asn	Tyr	Arg	Leu		
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Gly	Glu	Ser	Phe	Gln	Ser	Gln	Leu	Ser	Pro	Ser	Ala	Val	Ala	Gly	Thr		
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cgt	cta	ctg	gcg	gag	agc	cgc	tat	aac	ctt	gtc	gat	cgt	aac	aat	aat	1628	
Arg	Leu	Leu	Ala	Glu	Ser	Arg	Tyr	Asn	Leu	Val	Asp	Arg	Asn	Asn	Asn		
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atc	gtg	ttg	gag	tat	cag	aaa	cag	cag	gtg	gtt	aaa	ctg	aca	tta	tcg	1676	
Ile	Val	Leu	Glu	Tyr	Gln	Lys	Gln	Gln	Val	Val	Lys	Leu	Thr	Leu	Ser		
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cca	gca	act	atc	tcc	ggc	ctg	ccg	ggc	cag	gtt	tat	cag	gtg	aac	gca	1724	
Pro	Ala	Thr	Ile	Ser	Gly	Leu	Pro	Gly	Gln	Val	Tyr	Gln	Val	Asn	Ala		
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caa	gta	caa	ggg	gca	tct	gct	gta	agg	gaa	att	gtc	tgg	agt	gat	gcc	1772	
Gln	Val	Gln	Gly	Ala	Ser	Ala	Val	Arg	Glu	Ile	Val	Trp	Ser	Asp	Ala		
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gaa	ctg	att	gcc	gct	ggc	ggc	aca	tta	aca	cca	ctg	agt	acc	aca	caa	1820	
Glu	Leu	Ile	Ala	Ala	Gly	Gly	Thr	Leu	Thr	Pro	Leu	Ser	Thr	Thr	Gln		
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Phe	Asn	Leu	Val	Leu	Pro	Pro	Tyr	Lys	Arg	Thr	Ala	Gln	Val	Ser	Arg		
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gta	acg	gac	gac	ctg	aca	gcc	aac	ttt	tat	tcg	ctt	agt	gcg	ctc	gcg	1916	
Val	Thr	Asp	Asp	Leu	Thr	Ala	Asn	Phe	Tyr	Ser	Leu	Ser	Ala	Leu	Ala		
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Val	Gln	Gln	Pro	Gln	Leu	Thr	Leu	Thr	Ala	Ala	Val	Ile	Gly	Asp	Gly		
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gca	ccg	gct	aat	ggg	aaa	act	gca	atc	acc	gtt	gag	ttc	acc	gtt	gct	2060	
Ala	Pro	Ala	Asn	Gly	Lys	Thr	Ala	Ile	Thr	Val	Glu	Phe	Thr	Val	Ala		
	515					520					525						
gat	ttt	gag	ggg	aaa	ccc	tta	gcc	ggg	cag	gag	gtg	gtg	ata	acc	acc	2108	
Asp	Phe	Glu	Gly	Lys	Pro	Leu	Ala	Gly	Gln	Glu	Val	Val	Ile	Thr	Thr		
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aat	aat	ggc	gcg	cta	ccg	aat	aaa	atc	acg	gaa	aag	aca	gat	gca	aat	2156	
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Gly	Val	Ala	Arg	Ile	Ala	Leu	Thr	Asn	Thr	Thr	Asp	Gly	Val	Thr	Val		
			565					570					575				
gtc	aca	gca	gaa	gtg	gag	ggg	caa	cgg	caa	agt	gtt	gat	acc	cac	ttt	2252	

Val	Thr	Ala	Glu	Val	Glu	Gly	Gln	Arg	Gln	Ser	Val	Asp	Thr	His	Phe	
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gtt	aag	ggt	act	atc	gcg	gcg	gat	aaa	tcc	act	ctg	gct	gcg	gta	ccg	2300
Val	Lys	Gly	Thr	Ile	Ala	Ala	Asp	Lys	Ser	Thr	Leu	Ala	Ala	Val	Pro	
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aca	tct	atc	atc	gct	gat	ggt	cta	atg	gct	tca	acc	atc	acg	ttg	gag	2348
Thr	Ser	Ile	Ile	Ala	Asp	Gly	Leu	Met	Ala	Ser	Thr	Ile	Thr	Leu	Glu	
610					615					620					625	
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Leu	Lys	Asp	Thr	Tyr	Gly	Asp	Pro	Gln	Ala	Gly	Ala	Asn	Val	Ala	Phe	
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gac	aca	acc	tta	ggc	aat	atg	ggc	gtt	atc	acg	gat	cac	aat	gac	ggc	2444
Asp	Thr	Thr	Leu	Gly	Asn	Met	Gly	Val	Ile	Thr	Asp	His	Asn	Asp	Gly	
			645					650					655			
act	tat	agc	gca	cca	ttg	acc	agt	acc	acg	ttg	ggg	gta	gca	aca	gta	2492
Thr	Tyr	Ser	Ala	Pro	Leu	Thr	Ser	Thr	Thr	Leu	Gly	Val	Ala	Thr	Val	
		660					665					670				
acg	gtg	aaa	gtg	gat	ggg	gct	gcg	ttc	agt	gtg	ccg	agt	gtg	acg	gtt	2540
Thr	Val	Lys	Val	Asp	Gly	Ala	Ala	Phe	Ser	Val	Pro	Ser	Val	Thr	Val	
	675					680					685					
aat	ttc	acg	gca	gat	cct	att	cca	gat	gct	ggc	cgc	tcc	agt	ttc	acc	2588
Asn	Phe	Thr	Ala	Asp	Pro	Ile	Pro	Asp	Ala	Gly	Arg	Ser	Ser	Phe	Thr	
690					695					700					705	
gtc	tcc	aca	ccg	gat	atc	ttg	gct	gat	ggc	acg	atg	agt	tcc	aca	tta	2636
Val	Ser	Thr	Pro	Asp	Ile	Leu	Ala	Asp	Gly	Thr	Met	Ser	Ser	Thr	Leu	
				710					715					720		
tcc	ttt	gtc	cct	gtc	gat	aag	aat	ggc	cat	ttt	atc	agt	ggg	atg	cag	2684
Ser	Phe	Val	Pro	Val	Asp	Lys	Asn	Gly	His	Phe	Ile	Ser	Gly	Met	Gln	
			725					730					735			
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Gly	Leu	Ser	Phe	Thr	Gln	Asn	Gly	Val	Pro	Val	Ser	Ile	Ser	Pro	Ile	
		740					745					750				
acc	gag	cag	cca	gat	agc	tat	acc	gcg	acg	gtg	gtt	ggg	aat	agt	gtc	2780
Thr	Glu	Gln	Pro	Asp	Ser	Tyr	Thr	Ala	Thr	Val	Val	Gly	Asn	Ser	Val	
		755				760					765					
ggt	gat	gtc	aca	atc	acg	ccg	cag	gtt	gat	acc	ctg	ata	ctg	agt	aca	2828
Gly	Asp	Val	Thr	Ile	Thr	Pro	Gln	Val	Asp	Thr	Leu	Ile	Leu	Ser	Thr	
770					775					780					785	
ttg	cag	aaa	aaa	ata	tcc	cta	ttc	ccg	gta	cct	acg	ctg	acc	ggt	att	2876
Leu	Gln	Lys	Lys	Ile	Ser	Leu	Phe	Pro	Val	Pro	Thr	Leu	Thr	Gly	Ile	
				790					795					800		
ctg	gtt	aac	ggg	caa	aat	ttc	gct	acg	gat	aaa	ggg	ttc	ccg	aaa	acg	2924
Leu	Val	Asn	Gly	Gln	Asn	Phe	Ala	Thr	Asp	Lys	Gly	Phe	Pro	Lys	Thr	
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Gly Met Ser Met Tyr Phe Asn Lys Ile Ile Ser Phe Asn Ile Ile Ser
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Arg Ile Val Ile Cys Ile Phe Leu Ile Cys Gly Met Phe Met Ala Gly
35 40 45

Ala Ser Glu Lys Tyr Asp Ala Asn Ala Pro Gln Gln Val Gln Pro Tyr
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Ser Val Ser Ser Ser Ala Phe Glu Asn Leu His Pro Asn Asn Glu Met
65 70 75 80

Glu Ser Ser Ile Asn Pro Phe Ser Ala Ser Asp Thr Glu Arg Asn Ala
85 90 95

Ala Ile Ile Asp Arg Ala Asn Lys Glu Gln Glu Thr Glu Ala Val Asn
100 105 110

Lys Met Ile Ser Thr Gly Ala Arg Leu Ala Ala Ser Gly Arg Ala Ser
115 120 125

Asp Val Ala His Ser Met Val Gly Asp Ala Val Asn Gln Glu Ile Lys
130 135 140

Gln Trp Leu Asn Arg Phe Gly Thr Ala Gln Val Asn Leu Asn Phe Asp
145 150 155 160

Lys Asn Phe Ser Leu Lys Glu Ser Ser Leu Asp Trp Leu Ala Pro Trp
165 170 175

Tyr Asp Ser Ala Ser Phe Leu Phe Phe Ser Gln Leu Gly Ile Arg Asn
180 185 190

Lys Asp Ser Arg Asn Thr Leu Asn Leu Gly Val Gly Ile Arg Thr Leu
195 200 205

Glu Asn Gly Trp Leu Tyr Gly Leu Asn Thr Phe Tyr Asp Asn Asp Leu
210 215 220

Thr Gly His Asn His Arg Ile Gly Leu Gly Ala Glu Ala Trp Thr Asp
 225 230 235 240

Tyr Leu Gln Leu Ala Ala Asn Gly Tyr Phe Arg Leu Asn Gly Trp His
 245 250 255

Ser Ser Arg Asp Phe Ser Asp Tyr Lys Glu Arg Pro Ala Thr Gly Gly
 260 265 270

Asp Leu Arg Ala Asn Ala Tyr Leu Pro Ala Leu Pro Gln Leu Gly Gly
 275 280 285

Lys Leu Met Tyr Glu Gln Tyr Thr Gly Glu Arg Val Ala Leu Phe Gly
 290 295 300

Lys Asp Asn Leu Gln Arg Asn Pro Tyr Ala Val Thr Ala Gly Ile Asn
 305 310 315 320

Tyr Thr Pro Val Pro Leu Leu Thr Val Gly Val Asp Gln Arg Met Gly
 325 330 335

Lys Ser Ser Lys His Glu Thr Gln Trp Asn Leu Gln Met Asn Tyr Arg
 340 345 350

Leu Gly Glu Ser Phe Gln Ser Gln Leu Ser Pro Ser Ala Val Ala Gly
 355 360 365

Thr Arg Leu Leu Ala Glu Ser Arg Tyr Asn Leu Val Asp Arg Asn Asn
 370 375 380

Asn Ile Val Leu Glu Tyr Gln Lys Gln Gln Val Val Lys Leu Thr Leu
 385 390 395 400

Ser Pro Ala Thr Ile Ser Gly Leu Pro Gly Gln Val Tyr Gln Val Asn
 405 410 415

Ala Gln Val Gln Gly Ala Ser Ala Val Arg Glu Ile Val Trp Ser Asp
 420 425 430

Ala Glu Leu Ile Ala Ala Gly Gly Thr Leu Thr Pro Leu Ser Thr Thr
 435 440 445

Gln Phe Asn Leu Val Leu Pro Pro Tyr Lys Arg Thr Ala Gln Val Ser
 450 455 460

Arg Val Thr Asp Asp Leu Thr Ala Asn Phe Tyr Ser Leu Ser Ala Leu
 465 470 475 480

Ala Val Asp His Gln Gly Asn Arg Ser Asn Ser Phe Thr Leu Ser Val
 485 490 495

Thr Val Gln Gln Pro Gln Leu Thr Leu Thr Ala Ala Val Ile Gly Asp
 500 505 510

Gly Ala Pro Ala Asn Gly Lys Thr Ala Ile Thr Val Glu Phe Thr Val
 515 520 525

Ala Asp Phe Glu Gly Lys Pro Leu Ala Gly Gln Glu Val Val Ile Thr
 530 535 540

Thr Asn Asn Gly Ala Leu Pro Asn Lys Ile Thr Glu Lys Thr Asp Ala
 545 550 555 560

Asn Gly Val Ala Arg Ile Ala Leu Thr Asn Thr Thr Asp Gly Val Thr
 565 570 575

Val Val Thr Ala Glu Val Glu Gly Gln Arg Gln Ser Val Asp Thr His
 580 585 590

Phe Val Lys Gly Thr Ile Ala Ala Asp Lys Ser Thr Leu Ala Ala Val
 595 600 605

Pro Thr Ser Ile Ile Ala Asp Gly Leu Met Ala Ser Thr Ile Thr Leu
 610 615 620

Glu Leu Lys Asp Thr Tyr Gly Asp Pro Gln Ala Gly Ala Asn Val Ala
 625 630 635 640

Phe Asp Thr Thr Leu Gly Asn Met Gly Val Ile Thr Asp His Asn Asp
 645 650 655

Gly Thr Tyr Ser Ala Pro Leu Thr Ser Thr Thr Leu Gly Val Ala Thr
 660 665 670

Val Thr Val Lys Val Asp Gly Ala Ala Phe Ser Val Pro Ser Val Thr
 675 680 685

Val Asn Phe Thr Ala Asp Pro Ile Pro Asp Ala Gly Arg Ser Ser Phe
 690 695 700

Thr Val Ser Thr Pro Asp Ile Leu Ala Asp Gly Thr Met Ser Ser Thr
705 710 715 720

Leu Ser Phe Val Pro Val Asp Lys Asn Gly His Phe Ile Ser Gly Met
725 730 735

Gln Gly Leu Ser Phe Thr Gln Asn Gly Val Pro Val Ser Ile Ser Pro
740 745 750

Ile Thr Glu Gln Pro Asp Ser Tyr Thr Ala Thr Val Val Gly Asn Ser
755 760 765

Val Gly Asp Val Thr Ile Thr Pro Gln Val Asp Thr Leu Ile Leu Ser
770 775 780

Thr Leu Gln Lys Lys Ile Ser Leu Phe Pro Val Pro Thr Leu Thr Gly
785 790 795 800

Ile Leu Val Asn Gly Gln Asn Phe Ala Thr Asp Lys Gly Phe Pro Lys
805 810 815

Thr Ile Phe Lys Asn Ala Thr Phe Gln Leu Gln Met Asp Asn Asp Val
820 825 830

Ala Asn Asn Thr Gln Tyr Glu Trp Ser Ser Ser Phe Thr Pro Asn Val
835 840 845

Ser Val Asn Asp Gln Gly Gln Val Thr Ile Thr Tyr Gln Thr Tyr Ser
850 855 860

Glu Val Ala Val Thr Ala Lys Ser Lys Lys Phe Pro Ser Tyr Ser Val
865 870 875 880

Ser Tyr Arg Phe Tyr Pro Asn Arg Trp Ile Tyr Asp Gly Gly Arg Ser
885 890 895

Leu Val Ser Ser Leu Glu Ala Ser Arg Gln Cys Gln Gly Ser Asp Met
900 905 910

Ser Ala Val Leu Glu Ser Ser Arg Ala Thr Asn Gly Thr Arg Ala Pro
915 920 925

Asp Gly Thr Leu Trp Gly Glu Trp Gly Ser Leu Thr Ala Tyr Ser Ser
930 935 940

Asp Trp Gln Ser Gly Glu Tyr Trp Val Lys Lys Thr Ser Thr Asp Phe
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Glu Thr Met Asn Met Asp Thr Gly Ala Leu Gln Pro Gly Pro Ala Tyr
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<400> 34

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 ctgaccataa aggaacccaaa at atg aaa aaa gca ctt gcc aca ctg att gcc 172
 Met Lys Lys Ala Leu Ala Thr Leu Ile Ala
 1 5 10
 ctc gct ctc ccg gcc gcc gca ctg gcg gaa ggc gca tcc ggc ttt tac 220
 Leu Ala Leu Pro Ala Ala Ala Leu Ala Glu Gly Ala Ser Gly Phe Tyr
 15 20 25
 gtc caa gcc gat gcc gca cac gca aaa gcc tca agc tct tta ggt tct 268
 Val Gln Ala Asp Ala Ala His Ala Lys Ala Ser Ser Ser Leu Gly Ser
 30 35 40
 gcc aaa ggc ttc agc ccg cgc atc tcc gca ggc tac cgc atc aac gac 316
 Ala Lys Gly Phe Ser Pro Arg Ile Ser Ala Gly Tyr Arg Ile Asn Asp
 45 50 55
 ctc cgc ttc gcc gtc gat tac acg cgc tac aaa aac tat aaa gcc cca 364
 Leu Arg Phe Ala Val Asp Tyr Thr Arg Tyr Lys Asn Tyr Lys Ala Pro
 60 65 70
 tcc acc gat ttc aaa ctt tac agc atc ggc gcg tcc gcc att tac gac 412

Ser Thr Asp Phe Lys Leu Tyr Ser Ile Gly Ala Ser Ala Ile Tyr Asp
 75 80 85 90
 ttc gac acc caa tcg ccc gtc aaa ccg tat ctc ggc gcg cgc ttg agc 460
 Phe Asp Thr Gln Ser Pro Val Lys Pro Tyr Leu Gly Ala Arg Leu Ser
 95 100 105
 ctc aac cgc gcc tcc gtc gac ttg ggc ggc agc gac agc ttc agc caa 508
 Leu Asn Arg Ala Ser Val Asp Leu Gly Gly Ser Asp Ser Phe Ser Gln
 110 115 120
 acc tcc atc ggc ctc ggc gta ttg acg ggc gta agc tat gcc gtt acc 556
 Thr Ser Ile Gly Leu Gly Val Leu Thr Gly Val Ser Tyr Ala Val Thr
 125 130 135
 ccg aat gtc gat ttg gat gcc ggc tac cgc tac aac tac atc ggc aaa 604
 Pro Asn Val Asp Leu Asp Ala Gly Tyr Arg Tyr Asn Tyr Ile Gly Lys
 140 145 150
 gtc aac act gtc aaa aac gtc cgt tcc ggc gaa ctg tcc gtc ggc gtg 652
 Val Asn Thr Val Lys Asn Val Arg Ser Gly Glu Leu Ser Val Gly Val
 155 160 165 170
 cgc gtc aaa ttc tga tatgcgcctt attctgcaaa ccgccgagcc ttcggcgggtt 707
 Arg Val Lys Phe
 ttgttttctg ccaccgcaac tacacaagcc ggcgggttttg tacgataatc ccgaatgctg 767
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Ala Leu Ala Glu Gly Ala Ser Gly Phe Tyr Val Gln Ala Asp Ala Ala
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His Ala Lys Ala Ser Ser Ser Leu Gly Ser Ala Lys Gly Phe Ser Pro
 35 40 45

Arg Ile Ser Ala Gly Tyr Arg Ile Asn Asp Leu Arg Phe Ala Val Asp
 50 55 60

Tyr Thr Arg Tyr Lys Asn Tyr Lys Ala Pro Ser Thr Asp Phe Lys Leu
 65 70 75 80

Tyr Ser Ile Gly Ala Ser Ala Ile Tyr Asp Phe Asp Thr Gln Ser Pro
 85 90 95

Val Lys Pro Tyr Leu Gly Ala Arg Leu Ser Leu Asn Arg Ala Ser Val
 100 105 110

Asp Leu Gly Gly Ser Asp Ser Phe Ser Gln Thr Ser Ile Gly Leu Gly
 115 120 125

Val Leu Thr Gly Val Ser Tyr Ala Val Thr Pro Asn Val Asp Leu Asp
 130 135 140

Ala Gly Tyr Arg Tyr Asn Tyr Ile Gly Lys Val Asn Thr Val Lys Asn
 145 150 155 160

Val Arg Ser Gly Glu Leu Ser Val Gly Val Arg Val Lys Phe
 165 170

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 1 5 10 15

Gly Ser Gly Asp Tyr Asp Ser Met Lys Glu Pro Cys Phe Arg Glu Glu
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Asn Ala Asn Phe Asn Lys Ile Phe Leu Pro Thr Ile Tyr Ser Ile Ile
 35 40 45

Phe Leu Thr Gly Ile Val Gly Asn Gly Leu Val Ile Leu Val Met Gly
 50 55 60

Tyr Gln Lys Lys Leu Arg Ser Met Thr Asp Lys Tyr Arg Leu His Leu
 65 70 75 80

Ser Val Ala Asp Leu Leu Phe Val Ile Thr Leu Pro Phe Trp Ala Val
 85 90 95

Asp Ala Val Ala Asn Trp Tyr Phe Gly Asn Phe Leu Cys Lys Ala Val
 100 105 110

His Val Ile Tyr Thr Val Asn Leu Tyr Ser Ser Val Leu Ile Leu Ala
 115 120 125

Phe Ile Ser Leu Asp Arg Tyr Leu Ala Ile Val His Ala Thr Asn Ser
 130 135 140

Gln Arg Pro Arg Lys Leu Leu Ala Glu Lys Val Val Tyr Val Gly Val
 145 150 155 160

gca gtg gag ttt gac ggg ggc gtt gtg atg ggt tct gat tcc cga gtg 99
Ala Val Glu Phe Asp Gly Gly Val Val Met Gly Ser Asp Ser Arg Val

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tct gca ggc gag gcg gtg gtg aac cga	gtg ttt gac aag ctg tcc ccg			147
Ser Ala Gly Glu Ala Val Val Asn Arg	Val Phe Asp Lys Leu Ser Pro			
35	40	45		
ctg cac gag cgc atc tac tgt gca ctc	tct ggt tca gct gct gat gcc			195
Leu His Glu Arg Ile Tyr Cys Ala Leu	Ser Gly Ser Ala Ala Asp Ala			
50	55	60		
caa gcc gtg gcc gac atg gcc gcc tac	cag ctg gag ctc cat ggg ata			243
Gln Ala Val Ala Asp Met Ala Ala Tyr	Gln Leu Glu Leu His Gly Ile			
65	70	75		
gaa ctg gag gaa cct cca ctt gtt ttg	gct gct gca aat gtg gtg aga			291
Glu Leu Glu Glu Pro Pro Leu Val Leu	Ala Ala Asn Val Val Arg			
80	85	90		
aat atc agc tat aaa tat cga gag gac	ttg tct gca cat ctc atg gta			339
Asn Ile Ser Tyr Lys Tyr Arg Glu Asp	Leu Ser Ala His Leu Met Val			
95	100	105	110	
gct ggc tgg gac caa cgt gaa gga ggt	cag gta tat gga acc ctg gga			387
Ala Gly Trp Asp Gln Arg Glu Gly Gly	Gln Val Tyr Gly Thr Leu Gly			
115	120	125		
gga atg ctg act cga cag cct ttt gcc	att ggt ggc tcc ggc agc acc			435
Gly Met Leu Thr Arg Gln Pro Phe Ala	Ile Gly Gly Ser Gly Ser Thr			
130	135	140		
ttt atc tat ggt tat gtg gat gca gca	tat aag cca ggc atg tct ccc			483
Phe Ile Tyr Gly Tyr Val Asp Ala Ala	Tyr Lys Pro Gly Met Ser Pro			
145	150	155		
gag gag tgc agg cgc ttc acc aca gac	gct att gct ctg gcc atg agc			531
Glu Glu Cys Arg Arg Phe Thr Asp Ala	Ile Ala Leu Ala Met Ser			
160	165	170		
cgg gat ggc tca agc ggg ggt gtc atc	tac ctg gtc act att aca gct			579
Arg Asp Gly Ser Ser Gly Gly Val Ile	Tyr Leu Val Thr Ile Thr Ala			
175	180	185	190	
gcc ggt gtg gac cat cga gtc atc ttg	ggc aat gaa ctg cca aaa ttc			627
Ala Gly Val Asp His Arg Val Ile Leu	Gly Asn Glu Leu Pro Lys Phe			
195	200	205		
tat gat gag tga accttc				645
Tyr Asp Glu				

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Met Leu Arg Ala Gly Glu Val His Thr Gly Thr Thr Ile Met Ala Val
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Glu Phe Asp Gly Gly Val Val Met Gly Ser Asp Ser Arg Val Ser Ala
20 25 30

gga gct tct ctc gca tgg ctg ggg aca gta ctg cta ctt ctc gcc gac 96
Gly Ala Ser Leu Ala Trp Leu Gly Thr Val Leu Leu Leu Ala Asp
20 25 30

tgg	gtg	ctg	ctc	cgg	acc	gcg	ctg	ccc	cgc	ata	ttc	tcc	ctg	ctg	gtg	144
Trp	Val	Leu	Leu	Arg	Thr	Ala	Leu	Pro	Arg	Ile	Phe	Ser	Leu	Leu	Val	
		35					40					45				
ccc	acc	gcg	ctg	cca	ctg	ctc	cgg	gtc	tgg	gcg	gtg	ggc	ctg	agc	cgc	192
Pro	Thr	Ala	Leu	Pro	Leu	Leu	Arg	Val	Trp	Ala	Val	Gly	Leu	Ser	Arg	
	50					55					60					
tgg	gcc	gtg	ctc	tgg	ctg	ggg	gcc	tgc	ggg	gtc	ctc	agg	gca	acg	gtt	240
Trp	Ala	Val	Leu	Trp	Leu	Gly	Ala	Cys	Gly	Val	Leu	Arg	Ala	Thr	Val	
65					70					75					80	
ggc	tcc	aag	agc	gaa	aac	gca	ggt	gcc	cag	ggc	tgg	ctg	gct	gct	ttg	288
Gly	Ser	Lys	Ser	Glu	Asn	Ala	Gly	Ala	Gln	Gly	Trp	Leu	Ala	Ala	Leu	
				85					90					95		
aag	cca	tta	gct	gcg	gca	ctg	ggc	ttg	gcc	ctg	ccg	gga	ctt	gcc	ttg	336
Lys	Pro	Leu	Ala	Ala	Ala	Leu	Gly	Leu	Ala	Leu	Pro	Gly	Leu	Ala	Leu	
			100					105					110			
ttc	cga	gag	ctg	atc	tca	tgg	gga	gcc	ccc	ggg	tcc	gcg	gat	agc	acc	384
Phe	Arg	Glu	Leu	Ile	Ser	Trp	Gly	Ala	Pro	Gly	Ser	Ala	Asp	Ser	Thr	
		115					120					125				
agg	cta	ctg	cac	tgg	gga	agt	cac	cct	acc	gcc	ttc	gtt	gtc	agt	tat	432
Arg	Leu	Leu	His	Trp	Gly	Ser	His	Pro	Thr	Ala	Phe	Val	Val	Ser	Tyr	
	130					135					140					
gca	gcg	gca	ctg	ccc	gca	gca	gcc	ctg	tgg	cac	aaa	ctc	ggg	agc	ctc	480
Ala	Ala	Ala	Leu	Pro	Ala	Ala	Ala	Leu	Trp	His	Lys	Leu	Gly	Ser	Leu	
145					150					155					160	
tgg	gtg	ccc	ggc	ggt	cag	ggc	ggc	tct	gga	aac	cct	gtg	cgt	cgg	ctt	528
Trp	Val	Pro	Gly	Gly	Gln	Gly	Gly	Ser	Gly	Asn	Pro	Val	Arg	Arg	Leu	
				165					170					175		
cta	ggc	tgc	ctg	ggc	tcg	gag	acg	cgc	cgc	ctc	tcg	ctg	ttc	ctg	gtc	576
Leu	Gly	Cys	Leu	Gly	Ser	Glu	Thr	Arg	Arg	Leu	Ser	Leu	Phe	Leu	Val	
			180					185					190			
ctg	gtg	gtc	ctc	tcc	tct	ctt	ggg	gag	atg	gcc	att	cca	ttc	ttt	acg	624
Leu	Val	Val	Leu	Ser	Ser	Leu	Gly	Glu	Met	Ala	Ile	Pro	Phe	Phe	Thr	
		195					200					205				
ggc	cgc	ctc	act	gac	tgg	att	cta	caa	gat	ggc	tca	gcc	gat	acc	ttc	672
Gly	Arg	Leu	Thr	Asp	Trp	Ile	Leu	Gln	Asp	Gly	Ser	Ala	Asp	Thr	Phe	
	210					215					220					
act	cga	aac	tta	act	ctc	atg	tcc	att	ctc	acc	ata	gcc	agt	gca	gtg	720
Thr	Arg	Asn	Leu	Thr	Leu	Met	Ser	Ile	Leu	Thr	Ile	Ala	Ser	Ala	Val	
	225				230					235					240	
ctg	gag	ttc	gtg	ggt	gac	ggg	atc	tat	aac	aac	acc	atg	ggc	cac	gtg	768
Leu	Glu	Phe	Val	Gly	Asp	Gly	Ile	Tyr	Asn	Asn	Thr	Met	Gly	His	Val	
				245					250					255		
cac	agc	cac	ttg	cag	gga	gag	gtg	ttt	ggg	gct	gtc	ctg	cgc	cag	gag	816
His	Ser	His	Leu	Gln	Gly	Glu	Val	Phe	Gly	Ala	Val	Leu	Arg	Gln	Glu	
			260					265					270			

acg gag ttt ttc caa cag aac cag aca ggt aac atc atg tct cgg gta	864
Thr Glu Phe Phe Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val	
275 280 285	
aca gag gac acg tcc acc ctg agt gat tct ctg agt gag aat ctg agc	912
Thr Glu Asp Thr Ser Thr Leu Ser Asp Ser Leu Ser Glu Asn Leu Ser	
290 295 300	
tta ttt ctg tgg tac ctg gtg cga ggc cta tgt ctc ttg ggg atc atg	960
Leu Phe Leu Trp Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met	
305 310 315 320	
ctc tgg gga tca gtg tcc ctc acc atg gtc acc ctg gtc acc ctg cct	1008
Leu Trp Gly Ser Val Ser Leu Thr Met Val Thr Leu Val Thr Leu Pro	
325 330 335	
ctg ctt ttc ctt ctg ccc aag aag gtg gga aaa tgg tac cag ttg ctg	1056
Leu Leu Phe Leu Leu Pro Lys Lys Val Gly Lys Trp Tyr Gln Leu Leu	
340 345 350	
gaa gtg cag gtg cgg gaa tct ctg gca aag tcc agc cag gtg gcc att	1104
Glu Val Gln Val Arg Glu Ser Leu Ala Lys Ser Ser Gln Val Ala Ile	
355 360 365	
gag gct ctg tcg gcc atg cct aca gtt cga agc ttt gcc aac gag gag	1152
Glu Ala Leu Ser Ala Met Pro Thr Val Arg Ser Phe Ala Asn Glu Glu	
370 375 380	
ggc gaa gcc cag aag ttt agg gaa aag ctg caa gaa ata aag aca ctc	1200
Gly Glu Ala Gln Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu	
385 390 395 400	
aac cag aag gag gct gtg gcc tat gca gtc aac tcc tgg acc act agt	1248
Asn Gln Lys Glu Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser	
405 410 415	
att tca ggt atg ctg ctg aaa gtg gga atc ctc tac att ggt ggg cag	1296
Ile Ser Gly Met Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln	
420 425 430	
ctg gtg acc agt ggg gct gta agc agt ggg aac ctt gtc aca ttt gtt	1344
Leu Val Thr Ser Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val	
435 440 445	
ctc tac cag atg cag ttc acc cag gct ttg gag gta ctg ctc tcc atc	1392
Leu Tyr Gln Met Gln Phe Thr Gln Ala Leu Glu Val Leu Leu Ser Ile	
450 455 460	
tac ccc aga gta cag aag gct gtg ggc tcc tca gag aaa ata ttt gag	1440
Tyr Pro Arg Val Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu	
465 470 475 480	
tac ctg gac cgc acc cct cgc tgc cca ccc agt ggt ctg ttg act ccc	1488
Tyr Leu Asp Arg Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro	
485 490 495	
tta cac ttg gag ggc ctt gtc cag ttc caa gat gtc tcc ttt gcc tac	1536
Leu His Leu Glu Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr	
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cca aac cgc cca gat gtc tta gtg cta cag ggg ctg aca ttc acc cta	1584
Pro Asn Arg Pro Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu	
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cgc cct ggc gag gtg acg gcg ctg gtg gga ccc aat ggg tct ggg aag	1632
Arg Pro Gly Glu Val Thr Ala Leu Val Gly Pro Asn Gly Ser Gly Lys	
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agc aca gtg gct gcc ctg ctg cag aat ctg tac cag ccc acc ggg gga	1680
Ser Thr Val Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly	
545 550 555 560	
cag ctg ctg ttg gat ggg aag ccc ctt ccc caa tat gag cac cgc tac	1728
Gln Leu Leu Leu Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr	
565 570 575	
ctg cac agg cag gtg gct gca gtg gga caa gag cca cag gta ttt gga	1776
Leu His Arg Gln Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly	
580 585 590	
aga agt ctt caa gaa aat att gcc tat ggc ctg acc cag aag cca act	1824
Arg Ser Leu Gln Glu Asn Ile Ala Tyr Gly Leu Thr Gln Lys Pro Thr	
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atg gag gaa atc aca gct gct gca gta aag tct ggg gcc cat agt ttc	1872
Met Glu Glu Ile Thr Ala Ala Val Lys Ser Gly Ala His Ser Phe	
610 615 620	
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Ile Ser Gly Leu Pro Gln Gly Tyr Asp Thr Glu Val Gly Glu Ala Gly	
625 630 635 640	
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Ser Gln Leu Ser Gly Gly Gln Gln Gln Ala Val Ala Leu Ala Arg Ala	
645 650 655	
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Leu Ile Arg Lys Pro Cys Val Leu Ile Leu Asp Asp Ala Thr Ser Ala	
660 665 670	
ctg gat gca aac agc cag tta cag gtg gag cag ctc ctg tac gaa agc	2064
Leu Asp Ala Asn Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser	
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cct gag cgg tac tcc cgc tca gtg ctt ctc atc acc cag cac ctc agc	2112
Pro Glu Arg Tyr Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser	
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Leu Val Glu Gln Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile	
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cgg gag ggg gga acc cac cag cag ctc atg gag aaa aag ggg tgc tac	2208
Arg Glu Gly Gly Thr His Gln Gln Leu Met Glu Lys Lys Gly Cys Tyr	
725 730 735	
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 35 40 45
 Pro Thr Ala Leu Pro Leu Leu Arg Val Trp Ala Val Gly Leu Ser Arg
 50 55 60
 Trp Ala Val Leu Trp Leu Gly Ala Cys Gly Val Leu Arg Ala Thr Val
 65 70 75 80
 Gly Ser Lys Ser Glu Asn Ala Gly Ala Gln Gly Trp Leu Ala Ala Leu
 85 90 95
 Lys Pro Leu Ala Ala Ala Leu Gly Leu Ala Leu Pro Gly Leu Ala Leu
 100 105 110
 Phe Arg Glu Leu Ile Ser Trp Gly Ala Pro Gly Ser Ala Asp Ser Thr
 115 120 125
 Arg Leu Leu His Trp Gly Ser His Pro Thr Ala Phe Val Val Ser Tyr
 130 135 140
 Ala Ala Ala Leu Pro Ala Ala Ala Leu Trp His Lys Leu Gly Ser Leu
 145 150 155 160
 Trp Val Pro Gly Gly Gln Gly Gly Ser Gly Asn Pro Val Arg Arg Leu
 165 170 175
 Leu Gly Cys Leu Gly Ser Glu Thr Arg Arg Leu Ser Leu Phe Leu Val
 180 185 190
 Leu Val Val Leu Ser Ser Leu Gly Glu Met Ala Ile Pro Phe Phe Thr
 195 200 205
 Gly Arg Leu Thr Asp Trp Ile Leu Gln Asp Gly Ser Ala Asp Thr Phe
 210 215 220

Thr Arg Asn Leu Thr Leu Met Ser Ile Leu Thr Ile Ala Ser Ala Val
 225 230 235 240

Leu Glu Phe Val Gly Asp Gly Ile Tyr Asn Asn Thr Met Gly His Val
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His Ser His Leu Gln Gly Glu Val Phe Gly Ala Val Leu Arg Gln Glu
 260 265 270

Thr Glu Phe Phe Gln Gln Asn Gln Thr Gly Asn Ile Met Ser Arg Val
 275 280 285

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Leu Phe Leu Trp Tyr Leu Val Arg Gly Leu Cys Leu Leu Gly Ile Met
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Leu Trp Gly Ser Val Ser Leu Thr Met Val Thr Leu Val Thr Leu Pro
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 355 360 365

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Gly Glu Ala Gln Lys Phe Arg Glu Lys Leu Gln Glu Ile Lys Thr Leu
 385 390 395 400

Asn Gln Lys Glu Ala Val Ala Tyr Ala Val Asn Ser Trp Thr Thr Ser
 405 410 415

Ile Ser Gly Met Leu Leu Lys Val Gly Ile Leu Tyr Ile Gly Gly Gln
 420 425 430

Leu Val Thr Ser Gly Ala Val Ser Ser Gly Asn Leu Val Thr Phe Val
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Leu Tyr Gln Met Gln Phe Thr Gln Ala Leu Glu Val Leu Leu Ser Ile
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Tyr Pro Arg Val Gln Lys Ala Val Gly Ser Ser Glu Lys Ile Phe Glu
465 470 475 480

Tyr Leu Asp Arg Thr Pro Arg Cys Pro Pro Ser Gly Leu Leu Thr Pro
485 490 495

Leu His Leu Glu Gly Leu Val Gln Phe Gln Asp Val Ser Phe Ala Tyr
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Pro Asn Arg Pro Asp Val Leu Val Leu Gln Gly Leu Thr Phe Thr Leu
515 520 525

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530 535 540

Ser Thr Val Ala Ala Leu Leu Gln Asn Leu Tyr Gln Pro Thr Gly Gly
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Gln Leu Leu Leu Asp Gly Lys Pro Leu Pro Gln Tyr Glu His Arg Tyr
565 570 575

Leu His Arg Gln Val Ala Ala Val Gly Gln Glu Pro Gln Val Phe Gly
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Ile Ser Gly Leu Pro Gln Gly Tyr Asp Thr Glu Val Gly Glu Ala Gly
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Ser Gln Leu Ser Gly Gly Gln Gln Gln Ala Val Ala Leu Ala Arg Ala
645 650 655

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660 665 670

Leu Asp Ala Asn Ser Gln Leu Gln Val Glu Gln Leu Leu Tyr Glu Ser
675 680 685

Pro Glu Arg Tyr Ser Arg Ser Val Leu Leu Ile Thr Gln His Leu Ser
690 695 700

Leu Val Glu Gln Ala Asp His Ile Leu Phe Leu Glu Gly Gly Ala Ile
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725 730 735

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Met Ser Lys Gly Pro Ala Val Gly Ile Asp Leu Gly Thr Thr Tyr
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tct tgt gtg ggt gtt ttc cag cac gga aaa gtc gag ata att gcc aat 157
Ser Cys Val Gly Val Phe Gln His Gly Lys Val Glu Ile Ile Ala Asn
20 25 30
gat cag gga aac cga acc act cca agc tat gtc gcc ttt acg gac act 205
Asp Gln Gly Asn Arg Thr Thr Pro Ser Tyr Val Ala Phe Thr Asp Thr
35 40 45
gaa cgg ttg atc ggt gat gcc gca aag aat caa gtt gca atg aac ccc 253
Glu Arg Leu Ile Gly Asp Ala Ala Lys Asn Gln Val Ala Met Asn Pro
50 55 60
acc aac aca gtt ttt gat gcc aaa cgt ctg att gga cgc aga ttt gat 301
Thr Asn Thr Val Phe Asp Ala Lys Arg Leu Ile Gly Arg Arg Phe Asp
65 70 75
gat gct gtt gtc cag tct gat atg aaa cat tgg ccc ttt atg gtg gtg 349
Asp Ala Val Val Gln Ser Asp Met Lys His Trp Pro Phe Met Val Val
80 85 90 95
aat gat gct ggc agg ccc aag gtc caa gta gaa tac aag gga gag acc 397
Asn Asp Ala Gly Arg Pro Lys Val Gln Val Glu Tyr Lys Gly Glu Thr
100 105 110
aaa agc ttc tat cca gag gag gtg tct tct atg gtt ctg aca aag atg 445
Lys Ser Phe Tyr Pro Glu Glu Val Ser Ser Met Val Leu Thr Lys Met
115 120 125
aag gaa att gca gaa gcc tac ctt ggg aag act gtt acc aat gct gtg 493
Lys Glu Ile Ala Glu Ala Tyr Leu Gly Lys Thr Val Thr Asn Ala Val
130 135 140
gtc aca gtg cca gct tac ttt aat gac tct cag cgt cag gct acc aaa 541
Val Thr Val Pro Ala Tyr Phe Asn Asp Ser Gln Arg Gln Ala Thr Lys
145 150 155
gat gct gga act att gct ggt ctc aat gta ctt aga att att aat gag 589
Asp Ala Gly Thr Ile Ala Gly Leu Asn Val Leu Arg Ile Ile Asn Glu

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cca act gct gct gct att gct tac ggc tta gac aaa aag gtt gga gca				637
Pro Thr Ala Ala Ala Ile Ala Tyr Gly Leu Asp Lys Lys Val Gly Ala	180	185	190	
gaa aga aac gtg ctc atc ttt gac ctg gga ggt ggc act ttt gat gtg				685
Glu Arg Asn Val Leu Ile Phe Asp Leu Gly Gly Gly Thr Phe Asp Val	195	200	205	
tca atc ctc act att gag gat gga atc ttt gag gtc aag tct aca gct				733
Ser Ile Leu Thr Ile Glu Asp Gly Ile Phe Glu Val Lys Ser Thr Ala	210	215	220	
gga gac acc cac ttg ggt gga gaa gat ttt gac aac cga atg gtc aac				781
Gly Asp Thr His Leu Gly Gly Glu Asp Phe Asp Asn Arg Met Val Asn	225	230	235	
cat ttt att gct gag ttt aag cgc aag cat aag aag gac atc agt gag				829
His Phe Ile Ala Glu Phe Lys Arg Lys His Lys Lys Asp Ile Ser Glu	240	245	250	255
aac aag aga gct gta aga cgc ctc cgt act gct tgt gaa cgt gct aag				877
Asn Lys Arg Ala Val Arg Arg Leu Arg Thr Ala Cys Glu Arg Ala Lys	260	265	270	
cgt acc ctc tct tcc agc acc cag gcc agt att gag atc gat tct ctc				925
Arg Thr Leu Ser Ser Ser Thr Gln Ala Ser Ile Glu Ile Asp Ser Leu	275	280	285	
tat gaa gga atc gac ttc tat acc tcc att acc cgt gcc cga ttt gaa				973
Tyr Glu Gly Ile Asp Phe Tyr Thr Ser Ile Thr Arg Ala Arg Phe Glu	290	295	300	
gaa ctg aat gct gac ctg ttc cgt ggc acc ctg gac cca gta gag aaa				1021
Glu Leu Asn Ala Asp Leu Phe Arg Gly Thr Leu Asp Pro Val Glu Lys	305	310	315	
gcc ctt cga gat gcc aaa cta gac aag tca cag att cat gat att gtc				1069
Ala Leu Arg Asp Ala Lys Leu Asp Lys Ser Gln Ile His Asp Ile Val	320	325	330	335
ctg gtt ggt ggt tct act cgt atc ccc aag att cag aag ctt ctc caa				1117
Leu Val Gly Gly Ser Thr Arg Ile Pro Lys Ile Gln Lys Leu Leu Gln	340	345	350	
gac ttc ttc aat gga aaa gaa ctg aat aag agc atc aac cct gat gaa				1165
Asp Phe Phe Asn Gly Lys Glu Leu Asn Lys Ser Ile Asn Pro Asp Glu	355	360	365	
gct gtt gct tat ggt gca gct gtc cag gca gcc atc ttg tct gga gac				1213
Ala Val Ala Tyr Gly Ala Ala Val Gln Ala Ala Ile Leu Ser Gly Asp	370	375	380	
aag tct gag aat gtt caa gat ttg ctg ctc ttg gat gtc act cct ctt				1261
Lys Ser Glu Asn Val Gln Asp Leu Leu Leu Leu Asp Val Thr Pro Leu	385	390	395	
tcc ctt ggt att gaa act gct ggt gga gtc atg act gtc ctc atc aag				1309
Ser Leu Gly Ile Glu Thr Ala Gly Gly Val Met Thr Val Leu Ile Lys				

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cgt aat acc acc att cct acc aag cag aca cag acc ttc act acc tat				1357
Arg Asn Thr Thr Ile Pro Thr Lys Gln Thr Gln Thr Phe Thr Thr Tyr				
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Ser Asp Asn Gln Pro Gly Val Leu Ile Gln Val Tyr Glu Gly Glu Arg				
435		440	445	
gcc atg aca aag gat aac aac ctg ctt ggc aag ttt gaa ctc aca ggc				1453
Ala Met Thr Lys Asp Asn Asn Leu Leu Gly Lys Phe Glu Leu Thr Gly				
450		455	460	
ata cct cct gca ccc cga ggt gtt cct cag att gaa gtc act ttt gac				1501
Ile Pro Pro Ala Pro Arg Gly Val Pro Gln Ile Glu Val Thr Phe Asp				
465		470	475	
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Ile Asp Ala Asn Gly Ile Leu Asn Val Ser Ala Val Asp Lys Ser Thr				
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gga aaa gag aac aag att act atc act aat gac aag ggc cgt ttg agc				1597
Gly Lys Glu Asn Lys Ile Thr Ile Thr Asn Asp Lys Gly Arg Leu Ser				
500		505	510	
aag gaa gac att gaa cgt atg gtc cag gaa gct gag aag tac aaa gct				1645
Lys Glu Asp Ile Glu Arg Met Val Gln Glu Ala Glu Lys Tyr Lys Ala				
515		520	525	
gaa gat gag aag cag agg gac aag gtg tca tcc aag aat tca ctt gag				1693
Glu Asp Glu Lys Gln Arg Asp Lys Val Ser Ser Lys Asn Ser Leu Glu				
530		535	540	
tcc tat gcc ttc aac atg aaa gca act gtt gaa gat gag aaa ctt caa				1741
Ser Tyr Ala Phe Asn Met Lys Ala Thr Val Glu Asp Glu Lys Leu Gln				
545		550	555	
ggc aag att aac gat gag gac aaa cag aag att ctg gac aag tgt aat				1789
Gly Lys Ile Asn Asp Glu Asp Lys Gln Lys Ile Leu Asp Lys Cys Asn				
560		565	570	575
gaa att atc aac tgg ctt gat aag aat cag act gct gag aag gaa gaa				1837
Glu Ile Ile Asn Trp Leu Asp Lys Asn Gln Thr Ala Glu Lys Glu Glu				
580		585	590	
ttt gaa cat caa cag aaa gag ctg gag aaa gtt tgc aac ccc atc atc				1885
Phe Glu His Gln Gln Lys Glu Leu Glu Lys Val Cys Asn Pro Ile Ile				
595		600	605	
acc aag ctg tac cag agt gca gga ggc atg cca gga gga atg cct ggg				1933
Thr Lys Leu Tyr Gln Ser Ala Gly Gly Met Pro Gly Gly Met Pro Gly				
610		615	620	
gga ttt cct ggt ggt gga gct cct ccc tct ggt ggt gct tcc tca ggg				1981
Gly Phe Pro Gly Gly Gly Ala Pro Pro Ser Gly Gly Ala Ser Ser Gly				
625		630	635	
ccc acc att gaa gag gtt gat taa gccaaccaag ttagatgta gcattgttcc				2035
Pro Thr Ile Glu Glu Val Asp				

640

645

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2085

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35 40 45Arg Leu Ile Gly Asp Ala Ala Lys Asn Gln Val Ala Met Asn Pro Thr
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195 200 205

Ile Leu Thr Ile Glu Asp Gly Ile Phe Glu Val Lys Ser Thr Ala Gly

210	215	220
Asp Thr His Leu Gly Gly Glu Asp Phe Asp Asn Arg Met Val Asn His 225 230 235 240		
Phe Ile Ala Glu Phe Lys Arg Lys His Lys Lys Asp Ile Ser Glu Asn 245 250 255		
Lys Arg Ala Val Arg Arg Leu Arg Thr Ala Cys Glu Arg Ala Lys Arg 260 265 270		
Thr Leu Ser Ser Ser Thr Gln Ala Ser Ile Glu Ile Asp Ser Leu Tyr 275 280 285		
Glu Gly Ile Asp Phe Tyr Thr Ser Ile Thr Arg Ala Arg Phe Glu Glu 290 295 300		
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Leu Arg Asp Ala Lys Leu Asp Lys Ser Gln Ile His Asp Ile Val Leu 325 330 335		
Val Gly Gly Ser Thr Arg Ile Pro Lys Ile Gln Lys Leu Leu Gln Asp 340 345 350		
Phe Phe Asn Gly Lys Glu Leu Asn Lys Ser Ile Asn Pro Asp Glu Ala 355 360 365		
Val Ala Tyr Gly Ala Ala Val Gln Ala Ala Ile Leu Ser Gly Asp Lys 370 375 380		
Ser Glu Asn Val Gln Asp Leu Leu Leu Leu Asp Val Thr Pro Leu Ser 385 390 395 400		
Leu Gly Ile Glu Thr Ala Gly Gly Val Met Thr Val Leu Ile Lys Arg 405 410 415		
Asn Thr Thr Ile Pro Thr Lys Gln Thr Gln Thr Phe Thr Thr Tyr Ser 420 425 430		
Asp Asn Gln Pro Gly Val Leu Ile Gln Val Tyr Glu Gly Glu Arg Ala 435 440 445		
Met Thr Lys Asp Asn Asn Leu Leu Gly Lys Phe Glu Leu Thr Gly Ile		

450 455 460
 Pro Pro Ala Pro Arg Gly Val Pro Gln Ile Glu Val Thr Phe Asp Ile
 465 470 475 480
 Asp Ala Asn Gly Ile Leu Asn Val Ser Ala Val Asp Lys Ser Thr Gly
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 Lys Glu Asn Lys Ile Thr Ile Thr Asn Asp Lys Gly Arg Leu Ser Lys
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 Glu Asp Ile Glu Arg Met Val Gln Glu Ala Glu Lys Tyr Lys Ala Glu
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 Asp Glu Lys Gln Arg Asp Lys Val Ser Ser Lys Asn Ser Leu Glu Ser
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 Tyr Ala Phe Asn Met Lys Ala Thr Val Glu Asp Glu Lys Leu Gln Gly
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 Lys Ile Asn Asp Glu Asp Lys Gln Lys Ile Leu Asp Lys Cys Asn Glu
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 Ile Ile Asn Trp Leu Asp Lys Asn Gln Thr Ala Glu Lys Glu Glu Phe
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 Lys Leu Tyr Gln Ser Ala Gly Gly Met Pro Gly Gly Met Pro Gly Gly
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	1				5				
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Met Val Phe Ile Met Leu Leu Asn Ile Ile Thr Pro Leu Phe Asn Lys									
10 15 20									
aat gaa gca ttt gca gca cga gat att tca tca acg aat gtt aca gat	270								
Asn Glu Ala Phe Ala Ala Arg Asp Ile Ser Ser Thr Asn Val Thr Asp									
25 30 35 40									
tta act gta tca ccg tct aag ata gaa gat ggt ggt aaa acg aca gta	318								
Leu Thr Val Ser Pro Ser Lys Ile Glu Asp Gly Gly Lys Thr Thr Val									
45 50 55									
aaa atg acg ttc gac gat aaa aat gga aaa ata caa aat ggt gac atg	366								
Lys Met Thr Phe Asp Asp Lys Asn Gly Lys Ile Gln Asn Gly Asp Met									
60 65 70									
att aaa gtg gca tgg ccg aca agc ggt aca gta aag ata gag ggt tat	414								
Ile Lys Val Ala Trp Pro Thr Ser Gly Thr Val Lys Ile Glu Gly Tyr									
75 80 85									
agt aaa aca gta cca tta act gtt aaa ggt gaa cag gtg ggt caa gca	462								
Ser Lys Thr Val Pro Leu Thr Val Lys Gly Glu Gln Val Gly Gln Ala									
90 95 100									
gtt att aca cca gac ggt gca aca att aca ttc aat gat aaa gta gaa	510								
Val Ile Thr Pro Asp Gly Ala Thr Ile Thr Phe Asn Asp Lys Val Glu									
105 110 115 120									
aaa tta agt gat gtt tcg gga ttt gca gaa ttt gaa gta caa gga aga	558								
Lys Leu Ser Asp Val Ser Gly Phe Ala Glu Phe Glu Val Gln Gly Arg									
125 130 135									
aat tta acg caa aca aat act tca gat gac aaa gta gct acg ata aca	606								
Asn Leu Thr Gln Thr Asn Thr Ser Asp Asp Lys Val Ala Thr Ile Thr									
140 145 150									
tct ggg aat aaa tca acg aat gtt acg gtt cat aaa agt gaa gcg gga	654								
Ser Gly Asn Lys Ser Thr Asn Val Thr Val His Lys Ser Glu Ala Gly									
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Thr Ser Ser Val Phe Tyr Tyr Lys Thr Gly Asp Met Leu Pro Glu Asp									
170 175 180									
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Thr Thr His Val Arg Trp Phe Leu Asn Ile Asn Asn Glu Lys Ser Tyr									
185 190 195 200									
gta tcg aaa gat att act ata aag gat cag att caa ggt gga cag cag	798								
Val Ser Lys Asp Ile Thr Ile Lys Asp Gln Ile Gln Gly Gly Gln Gln									
205 210 215									
tta gat tta agc aca tta aac att aat gtg aca ggt aca cat agc aat	846								
Leu Asp Leu Ser Thr Leu Asn Ile Asn Val Thr Gly Thr His Ser Asn									
220 225 230									
tat tat agt gga caa agt gca att act gat ttt gaa aaa gcc ttt cca	894								

Tyr	Tyr	Ser	Gly	Gln	Ser	Ala	Ile	Thr	Asp	Phe	Glu	Lys	Ala	Phe	Pro		
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ggt	tct	aaa	ata	act	gtt	gat	aat	acg	aag	aac	aca	att	gat	gta	aca	942	
Gly	Ser	Lys	Ile	Thr	Val	Asp	Asn	Thr	Lys	Asn	Thr	Ile	Asp	Val	Thr		
		250				255					260						
att	cca	caa	ggc	tat	ggg	tca	tat	aat	agt	ttt	tca	att	aac	tac	aaa	990	
Ile	Pro	Gln	Gly	Tyr	Gly	Ser	Tyr	Asn	Ser	Phe	Ser	Ile	Asn	Tyr	Lys		
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acc	aaa	att	acg	aat	gaa	cag	caa	aaa	gag	ttt	ggt	aat	aat	tca	caa	1038	
Thr	Lys	Ile	Thr	Asn	Glu	Gln	Gln	Lys	Glu	Phe	Val	Asn	Asn	Ser	Gln		
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Ala	Trp	Tyr	Gln	Glu	His	Gly	Lys	Glu	Glu	Val	Asn	Gly	Lys	Ser	Phe		
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Asn	His	Thr	Val	His	Asn	Ile	Asn	Ala	Asn	Ala	Gly	Ile	Glu	Gly	Thr		
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gta	aaa	ggt	gaa	tta	aaa	gtt	tta	aaa	cag	gat	aaa	gat	acc	aag	gct	1182	
Val	Lys	Gly	Glu	Leu	Lys	Val	Leu	Lys	Gln	Asp	Lys	Asp	Thr	Lys	Ala		
	330					335					340						
cct	ata	gct	aat	gta	aaa	ttt	aaa	ctt	tct	aaa	aaa	gat	gga	tca	gtt	1230	
Pro	Ile	Ala	Asn	Val	Lys	Phe	Lys	Leu	Ser	Lys	Lys	Asp	Gly	Ser	Val		
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Val	Lys	Asp	Asn	Gln	Lys	Glu	Ile	Glu	Ile	Ile	Thr	Asp	Ala	Asn	Gly		
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Ile	Ala	Asn	Ile	Lys	Ala	Leu	Pro	Ser	Gly	Asp	Tyr	Ile	Leu	Lys	Glu		
			380					385					390				
ata	gag	gcg	cca	cga	ccg	tat	aca	ttt	gat	aag	gat	aaa	gaa	tat	ccg	1374	
Ile	Glu	Ala	Pro	Arg	Pro	Tyr	Thr	Phe	Asp	Lys	Asp	Lys	Glu	Tyr	Pro		
			395				400					405					
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Phe	Thr	Met	Lys	Asp	Thr	Asp	Asn	Gln	Gly	Tyr	Phe	Thr	Thr	Ile	Glu		
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aat	gca	aaa	gcg	ata	gaa	aaa	aca	aaa	gat	gtt	tct	gct	caa	aag	gtt	1470	
Asn	Ala	Lys	Ala	Ile	Glu	Lys	Thr	Lys	Asp	Val	Ser	Ala	Gln	Lys	Val		
					430					435					440		
tgg	gaa	ggc	act	caa	aaa	gtg	aaa	cca	acg	att	tat	ttc	aag	ttg	tac	1518	
Trp	Glu	Gly	Thr	Gln	Lys	Val	Lys	Pro	Thr	Ile	Tyr	Phe	Lys	Leu	Tyr		
				445					450					455			
aaa	caa	gat	gac	aat	caa	aat	aca	aca	cca	gta	gac	aaa	gca	gag	att	1566	
Lys	Gln	Asp	Asp	Asn	Gln	Asn	Thr	Thr	Pro	Val	Asp	Lys	Ala	Glu	Ile		
			460					465					470				
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Lys	Lys	Leu	Glu	Asp	Gly	Thr	Thr	Lys	Val	Thr	Trp	Ser	Asn	Leu	Pro		
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Glu	Asn	Asp	Lys	Asn	Gly	Lys	Ala	Ile	Lys	Tyr	Leu	Val	Lys	Glu	Val		
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Asn	Ala	Gln	Gly	Glu	Asp	Thr	Thr	Pro	Glu	Gly	Tyr	Thr	Lys	Lys	Glu		
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Arg	Pro	Glu	Lys	Val	Ser	Val	Asn	Leu	Leu	Ala	Asn	Gly	Glu	Lys	Val		
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Glu	Asp	His	Val	Lys	Asp	Tyr	Thr	Thr	Asp	Ile	Asn	Gly	Thr	Thr	Ile		
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Trp	Asp	Asp	Asn	Asn	Asn	Gln	Asp	Gly	Lys	Arg	Pro	Thr	Glu	Ile	Lys		
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Asn	Glu	Ser	Asn	Asn	Trp	Thr	His	Thr	Trp	Thr	Gly	Leu	Asp	Glu	Lys		
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gca	aaa	gga	caa	caa	gta	aaa	tac	aca	gtc	gag	gaa	tta	aca	aag	gtc	2238	
Ala	Lys	Gly	Gln	Gln	Val	Lys	Tyr	Thr	Val	Glu	Glu	Leu	Thr	Lys	Val		
				685					690					695			
aaa	ggg	tat	aca	aca	cat	gtg	gat	aac	aat	gat	atg	ggg	aac	ttg	att	2286	
Lys	Gly	Tyr	Thr	Thr	His	Val	Asp	Asn	Asn	Asp	Met	Gly	Asn	Leu	Ile		
			700					705					710				
gtg	acg	aat	aaa	tat	acg	cca	gaa	aca	aca	tca	att	agt	ggg	gaa	aaa	2334	

Val Thr Asn Lys Tyr Thr Pro Glu Thr Thr Ser Ile Ser Gly Glu Lys	
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Val Trp Asp Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val	
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agt gtg aat tta ttg gct gat gga gag aaa gta aaa acg tta gac gtg	2430
Ser Val Asn Leu Leu Ala Asp Gly Glu Lys Val Lys Thr Leu Asp Val	
745 750 755 760	
aca tct gaa aca aac tgg aag tac gaa ttt aaa gac tta ccg aag tat	2478
Thr Ser Glu Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu Pro Lys Tyr	
765 770 775	
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Asp Glu Gly Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp His Val Lys	
780 785 790	
gac tac aca aca gac atc aac ggt acg aca ata acg aac aag tat aca	2574
Asp Tyr Thr Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn Lys Tyr Thr	
795 800 805	
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Pro Gly Glu Thr Ser Ala Thr Val Thr Lys Asn Trp Asp Asp Asn Asn	
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825 830 835 840	
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Trp Thr His Thr Trp Thr Gly Leu Asp Glu Lys Ala Lys Gly Gln Gln	
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Val Lys Tyr Thr Val Glu Glu Leu Thr Lys Val Lys Gly Tyr Thr Thr	
875 880 885	
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His Val Asp Asn Asn Asp Met Gly Asn Leu Ile Val Thr Asn Lys Tyr	
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Thr Pro Glu Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp Asp Lys	
905 910 915 920	
gac aat caa gat ggt aag aga cca gaa aaa gtc agt gtg aat tta ttg	2958
Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn Leu Leu	
925 930 935	
gct aac gga gag aaa gta aaa acg tta gac gtg aca tct gaa aca aac	3006
Ala Asn Gly Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu Thr Asn	
940 945 950	
tgg aag tac gaa ttt aaa gac tta ccg aag tat gat gaa gga aag aaa	3054

Phe Asn Ser

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Gly	Lys	Ile	Gln	Asn	Gly	Asp	Met	Ile	Lys	Val	Ala	Trp	Pro	Thr	Ser
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Gly	Thr	Val	Lys	Ile	Glu	Gly	Tyr	Ser	Lys	Thr	Val	Pro	Leu	Thr	Val
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Lys	Gly	Glu	Gln	Val	Gly	Gln	Ala	Val	Ile	Thr	Pro	Asp	Gly	Ala	Thr
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Ile	Thr	Phe	Asn	Asp	Lys	Val	Glu	Lys	Leu	Ser	Asp	Val	Ser	Gly	Phe
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Ala	Glu	Phe	Glu	Val	Gln	Gly	Arg	Asn	Leu	Thr	Gln	Thr	Asn	Thr	Ser
	130					135					140				

Asp	Asp	Lys	Val	Ala	Thr	Ile	Thr	Ser	Gly	Asn	Lys	Ser	Thr	Asn	Val
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Thr	Val	His	Lys	Ser	Glu	Ala	Gly	Thr	Ser	Ser	Val	Phe	Tyr	Tyr	Lys
				165					170					175	

Thr	Gly	Asp	Met	Leu	Pro	Glu	Asp	Thr	Thr	His	Val	Arg	Trp	Phe	Leu
			180					185					190		

Asn	Ile	Asn	Asn	Glu	Lys	Ser	Tyr	Val	Ser	Lys	Asp	Ile	Thr	Ile	Lys
		195					200					205			

Asp Gln Ile Gln Gly Gly Gln Gln Leu Asp Leu Ser Thr Leu Asn Ile
 210 215 220

Asn Val Thr Gly Thr His Ser Asn Tyr Tyr Ser Gly Gln Ser Ala Ile
 225 230 235 240

Thr Asp Phe Glu Lys Ala Phe Pro Gly Ser Lys Ile Thr Val Asp Asn
 245 250 255

Thr Lys Asn Thr Ile Asp Val Thr Ile Pro Gln Gly Tyr Gly Ser Tyr
 260 265 270

Asn Ser Phe Ser Ile Asn Tyr Lys Thr Lys Ile Thr Asn Glu Gln Gln
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Lys Glu Phe Val Asn Asn Ser Gln Ala Trp Tyr Gln Glu His Gly Lys
 290 295 300

Glu Glu Val Asn Gly Lys Ser Phe Asn His Thr Val His Asn Ile Asn
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Ala Asn Ala Gly Ile Glu Gly Thr Val Lys Gly Glu Leu Lys Val Leu
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Lys Gln Asp Lys Asp Thr Lys Ala Pro Ile Ala Asn Val Lys Phe Lys
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Leu Ser Lys Lys Asp Gly Ser Val Val Lys Asp Asn Gln Lys Glu Ile
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Glu Ile Ile Thr Asp Ala Asn Gly Ile Ala Asn Ile Lys Ala Leu Pro
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Ser Gly Asp Tyr Ile Leu Lys Glu Ile Glu Ala Pro Arg Pro Tyr Thr
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Phe Asp Lys Asp Lys Glu Tyr Pro Phe Thr Met Lys Asp Thr Asp Asn
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Gln Gly Tyr Phe Thr Thr Ile Glu Asn Ala Lys Ala Ile Glu Lys Thr
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Lys Asp Val Ser Ala Gln Lys Val Trp Glu Gly Thr Gln Lys Val Lys
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Pro Thr Ile Tyr Phe Lys Leu Tyr Lys Gln Asp Asp Asn Gln Asn Thr
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Thr Pro Val Asp Lys Ala Glu Ile Lys Lys Leu Glu Asp Gly Thr Thr
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Lys Val Thr Trp Ser Asn Leu Pro Glu Asn Asp Lys Asn Gly Lys Ala
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Ile Lys Tyr Leu Val Lys Glu Val Asn Ala Gln Gly Glu Asp Thr Thr
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Pro Glu Gly Tyr Thr Lys Lys Glu Asn Gly Leu Val Val Thr Asn Thr
 515 520 525

Glu Lys Pro Ile Glu Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp
 530 535 540

Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn
 545 550 555 560

Leu Leu Ala Asn Gly Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu
 565 570 575

Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu Pro Lys Tyr Asp Glu Gly
 580 585 590

Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp His Val Lys Asp Tyr Thr
 595 600 605

Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn Lys Tyr Thr Pro Gly Glu
 610 615 620

Thr Ser Ala Thr Val Thr Lys Asn Trp Asp Asp Asn Asn Asn Gln Asp
 625 630 635 640

Gly Lys Arg Pro Thr Glu Ile Lys Val Glu Leu Tyr Gln Asp Gly Lys
 645 650 655

Ala Thr Gly Lys Thr Ala Ile Leu Asn Glu Ser Asn Asn Trp Thr His
 660 665 670

Thr Trp Thr Gly Leu Asp Glu Lys Ala Lys Gly Gln Gln Val Lys Tyr
 675 680 685

Thr Val Glu Glu Leu Thr Lys Val Lys Gly Tyr Thr Thr His Val Asp
690 695 700

Asn Asn Asp Met Gly Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Glu
705 710 715 720

Thr Thr Ser Ile Ser Gly Glu Lys Val Trp Asp Asp Lys Asp Asn Gln
725 730 735

Asp Gly Lys Arg Pro Glu Lys Val Ser Val Asn Leu Leu Ala Asp Gly
740 745 750

Glu Lys Val Lys Thr Leu Asp Val Thr Ser Glu Thr Asn Trp Lys Tyr
755 760 765

Glu Phe Lys Asp Leu Pro Lys Tyr Asp Glu Gly Lys Lys Ile Glu Tyr
770 775 780

Thr Val Thr Glu Asp His Val Lys Asp Tyr Thr Thr Asp Ile Asn Gly
785 790 795 800

Thr Thr Ile Thr Asn Lys Tyr Thr Pro Gly Glu Thr Ser Ala Thr Val
805 810 815

Thr Lys Asn Trp Asp Asp Asn Asn Asn Gln Asp Gly Lys Arg Pro Thr
820 825 830

Glu Ile Lys Val Glu Leu Tyr Gln Asp Gly Lys Ala Thr Gly Lys Thr
835 840 845

Ala Ile Leu Asn Glu Ser Asn Asn Trp Thr His Thr Trp Thr Gly Leu
850 855 860

Asp Glu Lys Ala Lys Gly Gln Gln Val Lys Tyr Thr Val Glu Glu Leu
865 870 875 880

Thr Lys Val Lys Gly Tyr Thr Thr His Val Asp Asn Asn Asp Met Gly
885 890 895

Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Glu Thr Thr Ser Ile Ser
900 905 910

Gly Glu Lys Val Trp Asp Asp Lys Asp Asn Gln Asp Gly Lys Arg Pro
915 920 925

Glu Lys Val Ser Val Asn Leu Leu Ala Asn Gly Glu Lys Val Lys Thr
 930 935 940

Leu Asp Val Thr Ser Glu Thr Asn Trp Lys Tyr Glu Phe Lys Asp Leu
 945 950 955 960

Pro Lys Tyr Asp Glu Gly Lys Lys Ile Glu Tyr Thr Val Thr Glu Asp
 965 970 975

His Val Lys Asp Tyr Thr Thr Asp Ile Asn Gly Thr Thr Ile Thr Asn
 980 985 990

Lys Tyr Thr Pro Gly Glu Thr Ser Ala Thr Val Thr Lys Asn Trp Asp
 995 1000 1005

Asp Asn Asn Asn Gln Asp Gly Lys Arg Pro Thr Glu Ile Lys Val
 1010 1015 1020

Glu Leu Tyr Gln Asp Gly Lys Ala Thr Gly Lys Thr Ala Ile Leu
 1025 1030 1035

Asn Glu Ser Asn Asn Trp Thr His Thr Trp Thr Gly Leu Asp Glu
 1040 1045 1050

Lys Ala Lys Gly Gln Gln Val Lys Tyr Thr Val Asp Glu Leu Thr
 1055 1060 1065

Lys Val Asn Gly Tyr Thr Thr His Val Asp Asn Asn Asp Met Gly
 1070 1075 1080

Asn Leu Ile Val Thr Asn Lys Tyr Thr Pro Lys Lys Pro Asn Lys
 1085 1090 1095

Pro Ile Tyr Pro Glu Lys Pro Lys Asp Lys Thr Pro Pro Thr Lys
 1100 1105 1110

Pro Asp His Ser Asn Lys Val Lys Pro Thr Pro Pro Asp Lys Pro
 1115 1120 1125

Ser Lys Val Asp Lys Asp Asp Gln Pro Lys Asp Asn Lys Thr Lys
 1130 1135 1140

Pro Glu Asn Pro Leu Lys Glu Leu Pro Lys Thr Gly Met Lys Ile
 1145 1150 1155

Ile Thr Ser Trp Ile Thr Trp Val Phe Ile Gly Ile Leu Gly Leu
 1160 1165 1170

Tyr Leu Ile Leu Arg Lys Arg Phe Asn Ser
 1175 1180

<210> 46 <211> 9 <212> PRT <213> Homo sapiens <220> <221>
 MISC_FEATURE <222> (4)..(4) <223> Xaa can be any amino acid

<220> <221> MISC_FEATURE <222> (6)..(7) <223> Xaa can be any amino
 acid

<400> 46

Ile Leu Val Xaa Tyr Xaa Xaa Leu Val
 1 5

<210> 49 <211> 237 <212> PRT <213> Homo sapiens <400> 49

Met Thr Ser Glu Ile Thr Tyr Ala Glu Val Arg Phe Lys Asn Glu Phe
 1 5 10 15

Lys Ser Ser Gly Ile Asn Thr Ala Ser Ser Ala Ala Ser Lys Glu Arg
 20 25 30

Thr Ala Pro His Lys Ser Asn Thr Gly Phe Pro Lys Leu Leu Cys Ala
 35 40 45

Ser Leu Leu Ile Phe Phe Leu Leu Ala Ile Ser Phe Phe Ile Ala
 50 55 60

Phe Val Ile Phe Phe Gln Lys Tyr Ser Gln Leu Leu Glu Lys Lys Thr
 65 70 75 80

Thr Lys Glu Leu Val His Thr Thr Leu Glu Cys Val Lys Lys Asn Met
 85 90 95

Pro Val Glu Glu Thr Ala Trp Ser Cys Cys Pro Lys Asn Trp Lys Ser
 100 105 110

Phe Ser Ser Asn Cys Tyr Phe Ile Ser Thr Glu Ser Ala Ser Trp Gln

115

120

125

Asp Ser Glu Lys Asp Cys Ala Arg Met Glu Ala His Leu Leu Val Ile
 130 135 140

Asn Thr Gln Glu Glu Gln Asp Phe Ile Phe Gln Asn Leu Gln Glu Glu
 145 150 155 160

Ser Ala Tyr Phe Val Gly Leu Ser Asp Pro Glu Gly Gln Arg His Trp
 165 170 175

Gln Trp Val Asp Gln Thr Pro Tyr Asn Glu Ser Ser Thr Phe Trp His
 180 185 190

Pro Arg Glu Pro Ser Asp Pro Asn Glu Arg Cys Val Val Leu Asn Phe
 195 200 205

Arg Lys Ser Pro Lys Arg Trp Gly Trp Asn Asp Val Asn Cys Leu Gly
 210 215 220

Pro Gln Arg Ser Val Cys Glu Met Met Lys Ile His Leu
 225 230 235

<210> 53 <211> 32 <212> PRT <213> Homo sapiens <220> <221>
 MISC_FEATURE <222> (2)..(2) <223> Xaa is Ile or Leu

<220> <221> MISC_FEATURE <222> (3)..(3) <223> Xaa can be any amino
 acid

<220> <221> MISC_FEATURE <222> (6)..(6) <223> Xaa can be any amino
 acid

<220> <221> MISC_FEATURE <222> (8)..(25) <223> Xaa can be any amino
 acid

<220> <221> MISC_FEATURE <222> (26)..(26) <223> Xaa is Thr or Asn

<220> <221> MISC_FEATURE <222> (31)..(31) <223> Xaa is Ile or Val

<220> <221> MISC_FEATURE <222> (32)..(32) <223> Xaa is Lys or Arg

<400> 53

Glu Xaa Xaa Tyr Ala Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Glu Tyr Ser Glu Xaa Xaa
 20 25 30

<210> 54 <211> 6 <212> PRT <213> Homo sapiens <220> <221>

MISC_FEATURE <222> (1)..(1) <223> Xaa is Thr or Asn

<220> <221> MISC_FEATURE <222> (6)..(6) <223> Xaa is Ile or Val

<400> 54

Xaa Glu Tyr Ser Glu Xaa

1 5

<210> 56 <211> 626 <212> PRT <213> Homo sapiens <400> 56

Met Ile Phe Leu Thr Ala Leu Pro Leu Phe Trp Ile Met Ile Ser Ala
1 5 10 15

Ser Arg Gly Gly His Trp Gly Ala Trp Met Pro Ser Ser Ile Ser Ala
20 25 30

Phe Glu Gly Thr Cys Val Ser Ile Pro Cys Arg Phe Asp Phe Pro Asp
35 40 45

Glu Leu Arg Pro Ala Val Val His Gly Val Trp Tyr Phe Asn Ser Pro
50 55 60

Tyr Pro Lys Asn Tyr Pro Pro Val Val Phe Lys Ser Arg Thr Gln Val
65 70 75 80

Val His Glu Ser Phe Gln Gly Arg Ser Arg Leu Leu Gly Asp Leu Gly
85 90 95

Leu Arg Asn Cys Thr Leu Leu Leu Ser Asn Val Ser Pro Glu Leu Gly
100 105 110

Gly Lys Tyr Tyr Phe Arg Gly Asp Leu Gly Gly Tyr Asn Gln Tyr Thr
115 120 125

Phe Ser Glu His Ser Val Leu Asp Ile Val Asn Thr Pro Asn Ile Val
130 135 140

Val Pro Pro Glu Val Val Ala Gly Thr Glu Val Glu Val Ser Cys Met
145 150 155 160

Val Pro Asp Asn Cys Pro Glu Leu Arg Pro Glu Leu Ser Trp Leu Gly
165 170 175

His Glu Gly Leu Gly Glu Pro Ala Val Leu Gly Arg Leu Arg Glu Asp
 180 185 190

Glu Gly Thr Trp Val Gln Val Ser Leu Leu His Phe Val Pro Thr Arg
 195 200 205

Glu Ala Asn Gly His Arg Leu Gly Cys Gln Ala Ser Phe Pro Asn Thr
 210 215 220

Thr Leu Gln Phe Glu Gly Tyr Ala Ser Met Asp Val Lys Tyr Pro Pro
 225 230 235 240

Val Ile Val Glu Met Asn Ser Ser Val Glu Ala Ile Glu Gly Ser His
 245 250 255

Val Ser Leu Leu Cys Gly Ala Asp Ser Asn Pro Pro Pro Leu Leu Thr
 260 265 270

Trp Met Arg Asp Gly Thr Val Leu Arg Glu Ala Val Ala Glu Ser Leu
 275 280 285

Leu Leu Glu Leu Glu Glu Val Thr Pro Ala Glu Asp Gly Val Tyr Ala
 290 295 300

Cys Leu Ala Glu Asn Ala Tyr Gly Gln Asp Asn Arg Thr Val Gly Leu
 305 310 315 320

Ser Val Met Tyr Ala Pro Trp Lys Pro Thr Val Asn Gly Thr Met Val
 325 330 335

Ala Val Glu Gly Glu Thr Val Ser Ile Leu Cys Ser Thr Gln Ser Asn
 340 345 350

Pro Asp Pro Ile Leu Thr Ile Phe Lys Glu Lys Gln Ile Leu Ser Thr
 355 360 365

Val Ile Tyr Glu Ser Glu Leu Gln Leu Glu Leu Pro Ala Val Ser Pro
 370 375 380

Glu Asp Asp Gly Glu Tyr Trp Cys Val Ala Glu Asn Gln Tyr Gly Gln
 385 390 395 400

Arg Ala Thr Ala Phe Asn Leu Ser Val Glu Phe Ala Pro Val Leu Leu
 405 410 415

Leu Glu Ser His Cys Ala Ala Ala Arg Asp Thr Val Gln Cys Leu Cys
 420 425 430

Val Val Lys Ser Asn Pro Glu Pro Ser Val Ala Phe Glu Leu Pro Ser
 435 440 445

Arg Asn Val Thr Val Asn Glu Ser Glu Arg Glu Phe Val Tyr Ser Glu
 450 455 460

Arg Ser Gly Leu Val Leu Thr Ser Ile Leu Thr Leu Arg Gly Gln Ala
 465 470 475 480

Gln Ala Pro Pro Arg Val Ile Cys Thr Ala Arg Asn Leu Tyr Gly Ala
 485 490 495

Lys Ser Leu Glu Leu Pro Phe Gln Gly Ala His Arg Leu Met Trp Ala
 500 505 510

Lys Ile Gly Pro Val Gly Ala Val Val Ala Phe Ala Ile Leu Ile Ala
 515 520 525

Ile Val Cys Tyr Ile Thr Gln Thr Arg Arg Lys Lys Asn Val Thr Glu
 530 535 540

Ser Pro Ser Phe Ser Ala Gly Asp Asn Pro Pro Val Leu Phe Ser Ser
 545 550 555 560

Asp Phe Arg Ile Ser Gly Ala Pro Glu Lys Tyr Glu Ser Glu Arg Arg
 565 570 575

Leu Gly Ser Glu Arg Arg Leu Leu Gly Leu Arg Gly Glu Pro Pro Glu
 580 585 590

Leu Asp Leu Ser Tyr Ser His Ser Asp Leu Gly Lys Arg Pro Thr Lys
 595 600 605

Asp Ser Tyr Thr Leu Thr Glu Glu Leu Ala Glu Tyr Ala Glu Ile Arg
 610 615 620

Val Lys
 625

<210> 63 <211> 209 <212> PRT <213> Homo sapiens <400> 63
 Met Ala Leu Leu Ala Glu His Leu Leu Lys Pro Leu Pro Ala Asp Lys
 1 5 10 15
 Gln Ile Glu Thr Gly Pro Phe Leu Glu Ala Val Ser His Leu Pro Pro
 20 25 30
 Phe Phe Asp Cys Leu Gly Ser Pro Val Phe Thr Pro Ile Lys Ala Asp
 35 40 45
 Ile Ser Gly Asn Ile Thr Lys Ile Lys Ala Val Tyr Asp Thr Asn Pro
 50 55 60
 Ala Lys Phe Arg Thr Leu Gln Asn Ile Leu Glu Val Glu Lys Glu Met
 65 70 75 80
 Tyr Gly Ala Glu Trp Pro Lys Val Gly Ala Thr Leu Ala Leu Met Trp
 85 90 95
 Leu Lys Arg Gly Leu Arg Phe Ile Gln Val Phe Leu Gln Ser Ile Cys
 100 105 110
 Asp Gly Glu Arg Asp Glu Asn His Pro Asn Leu Ile Arg Val Asn Ala
 115 120 125
 Thr Lys Ala Tyr Glu Met Ala Leu Lys Lys Tyr His Gly Trp Ile Val
 130 135 140
 Gln Lys Ile Phe Gln Ala Ala Leu Tyr Ala Ala Pro Tyr Lys Ser Asp
 145 150 155 160
 Phe Leu Lys Ala Leu Ser Lys Gly Gln Asn Val Thr Glu Glu Glu Cys
 165 170 175
 Leu Glu Lys Ile Arg Leu Phe Leu Val Asn Tyr Thr Ala Thr Ile Asp
 180 185 190
 Val Ile Tyr Glu Met Tyr Thr Gln Met Asn Ala Glu Leu Asn Tyr Lys
 195 200 205
 Val

<210> 64 <211> 276 <212> PRT <213> Homo sapiens <400> 64

Met Gly Asn Ser Met Lys Ser Thr Pro Ala Pro Ala Glu Arg Pro Leu
 1 5 10 15
 Pro Asn Pro Glu Gly Leu Asp Ser Asp Phe Leu Ala Val Leu Ser Asp
 20 25 30
 Tyr Pro Ser Pro Asp Ile Ser Pro Pro Ile Phe Arg Arg Gly Glu Lys
 35 40 45
 Leu Arg Val Ile Ser Asp Glu Gly Gly Trp Trp Lys Ala Ile Ser Leu
 50 55 60
 Ser Thr Gly Arg Glu Ser Tyr Ile Pro Gly Ile Cys Val Ala Arg Val
 65 70 75 80
 Tyr His Gly Trp Leu Phe Glu Gly Leu Gly Arg Asp Lys Ala Glu Glu
 85 90 95
 Leu Leu Gln Leu Pro Asp Thr Lys Val Gly Ser Phe Met Ile Arg Glu
 100 105 110
 Ser Glu Thr Lys Lys Gly Phe Tyr Ser Leu Ser Val Arg His Arg Gln
 115 120 125
 Val Lys His Tyr Arg Ile Phe Arg Leu Pro Asn Asn Trp Tyr Tyr Ile
 130 135 140
 Ser Pro Arg Leu Thr Phe Gln Cys Leu Glu Asp Leu Val Asn His Tyr
 145 150 155 160
 Ser Glu Val Ala Asp Gly Leu Cys Cys Val Leu Thr Thr Pro Cys Leu
 165 170 175
 Thr Gln Ser Thr Ala Ala Pro Ala Val Arg Ala Ser Ser Ser Pro Val
 180 185 190
 Thr Leu Arg Gln Lys Thr Val Asp Trp Arg Arg Val Ser Arg Leu Gln
 195 200 205
 Glu Asp Pro Glu Gly Thr Glu Asn Pro Leu Gly Val Asp Glu Ser Leu
 210 215 220
 Phe Ser Tyr Gly Leu Arg Glu Ser Ile Ala Ser Tyr Leu Ser Leu Thr
 225 230 235 240

Ser Glu Asp Asn Thr Ser Phe Asp Arg Lys Lys Lys Ser Ile Ser Leu
 245 250 255

Met Tyr Gly Gly Ser Lys Arg Lys Ser Ser Phe Phe Ser Ser Pro Pro
 260 265 270

Tyr Phe Glu Asp
 275

<210> 65 <211> 18 <212> PRT <213> Homo sapiens <400> 65

Lys Arg Phe Lys Gln Asp Gly Gly Trp Ser His Trp Ser Pro Trp Ser
 1 5 10 15

Ser Cys

<210> 66 <211> 18 <212> PRT <213> Homo sapiens <400> 66

Lys Arg Ala Lys Ala Ala Gly Gly Trp Ser His Trp Ser Pro Trp Ser
 1 5 10 15

Ser Cys

<210> 67 <211> 1784 <212> DNA <213> Staphylococcus aureus <220>
 <221> CDS <222> (184)..(1635) <223>

<400> 67
 tcgaaatagc gtgattttgc ggtttttaagc cttttacttc ctgaataaat ctttcagcaa 60
 aatattttatt ttataagttg taaaacttac ctttaaattt aattataaat atagatttta 120
 gtattgcaat acataattcg ttatattatg atgactatac aaatacatag aggggggtatt 180
 aat ttg aaa aag aaa aac att tat tca att cgt aaa cta ggt gta ggt 228
 Leu Lys Lys Lys Asn Ile Tyr Ser Ile Arg Lys Leu Gly Val Gly
 1 5 10 15
 att gca tct gta act tta ggt aca tta ctt ata tct ggt ggc gta aca 276
 Ile Ala Ser Val Thr Leu Gly Thr Leu Leu Ile Ser Gly Gly Val Thr
 20 25 30
 cct gct gca aat gct gcg caa cac gat gaa gct caa caa aat gct ttt 324
 Pro Ala Ala Asn Ala Ala Gln His Asp Glu Ala Gln Gln Asn Ala Phe
 35 40 45
 tat caa gtc tta aat atg cct aac tta aat gct gat caa cgc aat ggt 372
 Tyr Gln Val Leu Asn Met Pro Asn Leu Asn Ala Asp Gln Arg Asn Gly
 50 55 60
 ttt atc caa agc ctt aaa gat gat cca agc caa agt gct aac gtt tta 420
 Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Val Leu

65	70	75	
ggt gaa gct caa aaa ctt aat gac tct caa gct cca aaa gct gat gcg Gly Glu Ala Gln Lys Leu Asn Asp Ser Gln Ala Pro Lys Ala Asp Ala 80 85 90 95			468
caa caa aat aac ttc gac aaa gat caa caa agc gcc ttc tat gaa atc Gln Gln Asn Asn Phe Asp Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile 100 105 110			516
ttg aac atg cct aac tta aac gaa gcg caa cgt aac ggc ttc att caa Leu Asn Met Pro Asn Leu Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln 115 120 125			564
agt ctt aaa gac gac cca agc caa agc act aac gtt tta ggt gaa gct Ser Leu Lys Asp Asp Pro Ser Gln Ser Thr Asn Val Leu Gly Glu Ala 130 135 140			612
aaa aaa tta aac gaa tct caa gca ccg aaa gct gat aac aat ttc aac Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn 145 150 155			660
aaa gaa caa caa aat gct ttc tat gaa atc ttg aat atg cct aac tta Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu 160 165 170 175			708
aac gaa gaa caa cgc aat ggt ttc atc caa agc tta aaa gat gac cca Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro 180 185 190			756
agc caa agt gct aac cta ttg tca gaa gct aaa aag tta aat gaa tct Ser Gln Ser Ala Asn Leu Leu Ser Glu Ala Lys Lys Leu Asn Glu Ser 195 200 205			804
caa gca ccg aaa gcg gat aac aaa ttc aac aaa gaa caa caa aat gct Gln Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala 210 215 220			852
ttc tat gaa atc tta cat tta cct aac tta aac gaa gaa caa cgc aat Phe Tyr Glu Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn 225 230 235			900
ggt ttc atc caa agc cta aaa gat gac cca agc caa agc gct aac ctt Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu 240 245 250 255			948
tta gca gaa gct aaa aag cta aat gat gct caa gca cca aaa gct gac Leu Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala Asp 260 265 270			996
aac aaa ttc aac aaa gaa caa caa aat gct ttc tat gaa att tta cat Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His 275 280 285			1044
tta cct aac tta act gaa gaa caa cgt aac ggc ttc atc caa agc ctt Leu Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu 290 295 300			1092
aaa gac gat cct tcg gtg agc aaa gaa att tta gca gaa gct aaa aag Lys Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys			1140

305	310	315	
cta aac gat gct caa gca cca aaa gag gaa gac aat aac aag cct ggc Leu Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly 320 325 330 335			1188
aaa gaa gac aat aac aag cct ggc aaa gaa gac aat aac aag cct ggc Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly 340 345 350			1236
aaa gaa gac aac aac aag cct ggc aaa gaa gac aac aac aag cct ggt Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly 355 360 365			1284
aaa gaa gac aac aac aag cct ggc aaa gaa gac ggc aac aag cct ggt Lys Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 370 375 380			1332
aaa gaa gac aac aaa aaa cct ggt aaa gaa gat ggc aac aag cct ggt Lys Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 385 390 395			1380
aaa gaa gac aac aaa aaa cct ggt aaa gaa gac ggc aac aag cct ggc Lys Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly 400 405 410 415			1428
aaa gaa gat ggc aac aaa cct ggt aaa gaa gat ggt aac gga gta cat Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His 420 425 430			1476
gtc gtt aaa ctt ggt gat aca gta aat gac att gca aaa gca aac ggc Val Val Lys Leu Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly 435 440 445			1524
act act gct gac aaa att gct gca gat aac aaa ttg gct gat aaa aac Thr Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn 450 455 460			1572
atg atc aaa ctt ggt caa gaa ctt gtt gtt gat aag aag caa cca caa Met Ile Lys Leu Gly Gln Glu Leu Val Val Asp Lys Lys Gln Pro Gln 465 470 475			1620
acc atg cag agc taa caaagctcaa gcattatcag aaactggcga agaaaatcca Thr Met Gln Ser 480			1675
ttcatcggtgta caactgtatt tggtggatta tcattagcct taggtgcagc gttattagct			1735
ggacgtcgtc gcgaactata aaaacaaaca atacacaacg atagatatc			1784

<210> 68 <211> 483 <212> PRT <213> Staphylococcus aureus <400> 68

Leu Lys Lys Lys Asn Ile Tyr Ser Ile Arg Lys Leu Gly Val Gly Ile
1 5 10 15

Ala Ser Val Thr Leu Gly Thr Leu Leu Ile Ser Gly Gly Val Thr Pro
20 25 30

Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu
 275 280 285

Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys
 290 295 300

Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu
 305 310 315 320

Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys
 325 330 335

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly Lys
 340 345 350

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Asn Asn Lys Pro Gly Lys
 355 360 365

Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 370 375 380

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 385 390 395 400

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 405 410 415

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His Val
 420 425 430

Val Lys Leu Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly Thr
 435 440 445

Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn Met
 450 455 460

Ile Lys Leu Gly Gln Glu Leu Val Val Asp Lys Lys Gln Pro Gln Thr
 465 470 475 480

Met Gln Ser

<210> 69 <211> 279 <212> DNA <213> Homo sapiens <220> <221> CDS
 <222> (1)..(279) <223>

<400> 69
 gtg aag ccc aag gcc tgg ctg tcc cgt ggc ccc agt cct ggc cct ggc 48
 Val Lys Pro Lys Ala Trp Leu Ser Arg Gly Pro Ser Pro Gly Pro Gly
 1 5 10 15
 cgt ctg ctg ctg gtg tgc cat gtc tca gga ttc tac cca aag cct gta 96
 Arg Leu Leu Leu Val Cys His Val Ser Gly Phe Tyr Pro Lys Pro Val
 20 25 30
 tgg gtg aag tgg atg cgg ggt gag cag gag cag cag ggc act cag cca 144
 Trp Val Lys Trp Met Arg Gly Glu Gln Glu Gln Gln Gly Thr Gln Pro
 35 40 45
 ggg gac atc ctg ccc aat gct gac gag aca tgg tat ctc cga gca acc 192
 Gly Asp Ile Leu Pro Asn Ala Asp Glu Thr Trp Tyr Leu Arg Ala Thr
 50 55 60
 ctg gat gtg gtg gct ggg gag gca gct ggc ctg tcc tgt cgg gtg aag 240
 Leu Asp Val Val Ala Gly Glu Ala Ala Gly Leu Ser Cys Arg Val Lys
 65 70 75 80
 cac agc agt cta gag ggc cag gac atc gtc ctc tac tgg 279
 His Ser Ser Leu Glu Gly Gln Asp Ile Val Leu Tyr Trp
 85 90

<210> 70 <211> 93 <212> PRT <213> Homo sapiens <400> 70
 Val Lys Pro Lys Ala Trp Leu Ser Arg Gly Pro Ser Pro Gly Pro Gly
 1 5 10 15
 Arg Leu Leu Leu Val Cys His Val Ser Gly Phe Tyr Pro Lys Pro Val
 20 25 30
 Trp Val Lys Trp Met Arg Gly Glu Gln Glu Gln Gln Gly Thr Gln Pro
 35 40 45
 Gly Asp Ile Leu Pro Asn Ala Asp Glu Thr Trp Tyr Leu Arg Ala Thr
 50 55 60
 Leu Asp Val Val Ala Gly Glu Ala Ala Gly Leu Ser Cys Arg Val Lys
 65 70 75 80
 His Ser Ser Leu Glu Gly Gln Asp Ile Val Leu Tyr Trp
 85 90

<210> 71 <211> 1873 <212> DNA <213> Mus musculus <220> <221> CDS
 <222> (173)..(175) <223>

<220> <221> CDS <222> (273)..(314) <223>

<220> <221> CDS <222> (315)..(1367) <223>

<400> 71

aggaagggac aggggtgacac cccaggatta cataaattta caggggctgc cgaattggtc	60
gaacaagccc gtggaacctg gaagccagag aacaccatcg ctgtaaagga aagaaactga	120
agctttttctc ggagcctatc tgggctgctc aaactttcag aatctaccga cc atg	175
Met	
1	
gtgagtcaga cagactgtct tgggggtggaa ctggagccaa cctgaggaat ctcaggggtcc	235
tggcaggagt ctccctgtcc cctacttttc tcctcag gag cgt gtg ctt ggc ttg	290
Glu Arg Val Leu Gly Leu	5
ttg ctg ttg ctt ctg gtg cac gcc tct ccc gcc cca cca gag ccc tgc	338
Leu Leu Leu Leu Leu Val His Ala Ser Pro Ala Pro Pro Glu Pro Cys	
10 15 20	
gag cta gac gag gaa agt tgc tcc tgc aac ttc tca gat ccg aag cca	386
Glu Leu Asp Glu Glu Ser Cys Ser Cys Asn Phe Ser Asp Pro Lys Pro	
25 30 35	
gat tgg tcc agc gct ttc aat tgt ttg ggg gcg gca gat gtg gaa ttg	434
Asp Trp Ser Ser Ala Phe Asn Cys Leu Gly Ala Ala Asp Val Glu Leu	
40 45 50 55	
tac ggc ggc ggc cgc agc ctg gaa tac ctt cta aag cgt gtg gac acg	482
Tyr Gly Gly Gly Arg Ser Leu Glu Tyr Leu Leu Lys Arg Val Asp Thr	
60 65 70	
gaa gca gat ctg ggg cag ttc act gat att atc aag tct ctg tcc tta	530
Glu Ala Asp Leu Gly Gln Phe Thr Asp Ile Ile Lys Ser Leu Ser Leu	
75 80 85	
aag cgg ctt acg gtg cgg gcc gcg cgg att cct agt cgg att cta ttc	578
Lys Arg Leu Thr Val Arg Ala Ala Arg Ile Pro Ser Arg Ile Leu Phe	
90 95 100	
gga gcc ctg cgt gtg ctc ggg att tcc ggc ctc cag gaa ctg act ctt	626
Gly Ala Leu Arg Val Leu Gly Ile Ser Gly Leu Gln Glu Leu Thr Leu	
105 110 115	
gaa aat ctc gag gta acc ggc acc gcg ccg cca ccg ctt ctg gaa gcc	674
Glu Asn Leu Glu Val Thr Gly Thr Ala Pro Pro Pro Leu Leu Glu Ala	
120 125 130 135	
acc gga ccc gat ctc aac atc ttg aac ctc cgc aac gtg tcg tgg gca	722
Thr Gly Pro Asp Leu Asn Ile Leu Asn Leu Arg Asn Val Ser Trp Ala	
140 145 150	
aca agg gat gcc tgg ctc gca gaa ctg cag cag tgg cta aag cct gga	770
Thr Arg Asp Ala Trp Leu Ala Glu Leu Gln Gln Trp Leu Lys Pro Gly	
155 160 165	
ctc aag gta ctg agt att gcc caa gca cac tca ctc aac ttt tcc tgc	818
Leu Lys Val Leu Ser Ile Ala Gln Ala His Ser Leu Asn Phe Ser Cys	
170 175 180	
gaa cag gtc cgc gtc ttc cct gcc ctc tcc acc tta gac ctg tct gac	866
Glu Gln Val Arg Val Phe Pro Ala Leu Ser Thr Leu Asp Leu Ser Asp	

185	190	195	
aat cct gaa ttg ggc gag aga gga ctg atc tca gcc ctc tgt ccc ctc			914
Asn Pro Glu Leu Gly Glu Arg Gly Leu Ile Ser Ala Leu Cys Pro Leu			
200	205	210	215
aag ttc ccg acc ctc caa gtt tta gcg ctg cgt aac gcg ggg atg gag			962
Lys Phe Pro Thr Leu Gln Val Leu Ala Leu Arg Asn Ala Gly Met Glu			
	220	225	230
acg ccc agc ggc gtg tgc tct gcg ctg gcc gca gca agg gta cag ctg			1010
Thr Pro Ser Gly Val Cys Ser Ala Leu Ala Ala Ala Arg Val Gln Leu			
	235	240	245
caa gga cta gac ctt agt cac aat tca ctg cgg gat gct gca ggc gct			1058
Gln Gly Leu Asp Leu Ser His Asn Ser Leu Arg Asp Ala Ala Gly Ala			
	250	255	260
ccg agt tgt gac tgg ccc agt cag cta aac tcg ctc aat ctg tct ttc			1106
Pro Ser Cys Asp Trp Pro Ser Gln Leu Asn Ser Leu Asn Leu Ser Phe			
	265	270	275
act ggg ctg aag cag gta cct aaa ggg ctg cca gcc aag ctc agc gtg			1154
Thr Gly Leu Lys Gln Val Pro Lys Gly Leu Pro Ala Lys Leu Ser Val			
	280	285	290
ctg gat ctc agt tac aac agg ctg gat agg aac cct agc cca gat gag			1202
Leu Asp Leu Ser Tyr Asn Arg Leu Asp Arg Asn Pro Ser Pro Asp Glu			
	300	305	310
ctg ccc caa gtg ggg aac ctg tca ctt aaa gga aat ccc ttt ttg gac			1250
Leu Pro Gln Val Gly Asn Leu Ser Leu Lys Gly Asn Pro Phe Leu Asp			
	315	320	325
tct gaa tcc cac tcg gag aag ttt aac tct ggc gta gtc acc gcc gga			1298
Ser Glu Ser His Ser Glu Lys Phe Asn Ser Gly Val Val Thr Ala Gly			
	330	335	340
gct cca tca tcc caa gca gtg gcc ttg tca gga act ctg gct ttg ctc			1346
Ala Pro Ser Ser Gln Ala Val Ala Leu Ser Gly Thr Leu Ala Leu Leu			
	345	350	355
cta gga gat cgc ctc ttt gtt taaggaacat ttgcacccctc ctggtttctg			1397
Leu Gly Asp Arg Leu Phe Val			
	360	365	
agggtcctcg tcaacgaatc ctctgcttta aatttatttaa aatcttaatc cacgatgtaa			1457
ggaaagaaag gcagtcaga tggttcagtg ggtaaaagcc agcaaacttg acccctgatt			1517
ttaaccctca ggatccacac ggaaggggaa aactcactcc tgaaagttgt ccatctgtgc			1577
tcacaaataa atatttttta aaataacaat gtgtttgttg gttttgtttt tgtttgggtt			1637
ttgttggtgtt tttgtttgtt ttgtttgtt tttgagacag tctggctatg tatccttggc			1697
tggcctcaaa ctcataaaga tcaagatcgg cctgcctcta cctccaaatg ctctgggttaa			1757
agggatgtgc ctccatgccc agttgaagtc atcctgaacc acgagtccag gccactcact			1817

ctttactaag atctttacta agtatctgcc ataggtcagg ctcaagtgcta aatgag

1873

<210> 72 <211> 366 <212> PRT <213> Mus musculus <400> 72

Met Glu Arg Val Leu Gly Leu Leu Leu Leu Leu Val His Ala Ser
1 5 10 15

Pro Ala Pro Pro Glu Pro Cys Glu Leu Asp Glu Glu Ser Cys Ser Cys
20 25 30

Asn Phe Ser Asp Pro Lys Pro Asp Trp Ser Ser Ala Phe Asn Cys Leu
35 40 45

Gly Ala Ala Asp Val Glu Leu Tyr Gly Gly Gly Arg Ser Leu Glu Tyr
50 55 60

Leu Leu Lys Arg Val Asp Thr Glu Ala Asp Leu Gly Gln Phe Thr Asp
65 70 75 80

Ile Ile Lys Ser Leu Ser Leu Lys Arg Leu Thr Val Arg Ala Ala Arg
85 90 95

Ile Pro Ser Arg Ile Leu Phe Gly Ala Leu Arg Val Leu Gly Ile Ser
100 105 110

Gly Leu Gln Glu Leu Thr Leu Glu Asn Leu Glu Val Thr Gly Thr Ala
115 120 125

Pro Pro Pro Leu Leu Glu Ala Thr Gly Pro Asp Leu Asn Ile Leu Asn
130 135 140

Leu Arg Asn Val Ser Trp Ala Thr Arg Asp Ala Trp Leu Ala Glu Leu
145 150 155 160

Gln Gln Trp Leu Lys Pro Gly Leu Lys Val Leu Ser Ile Ala Gln Ala
165 170 175

His Ser Leu Asn Phe Ser Cys Glu Gln Val Arg Val Phe Pro Ala Leu
180 185 190

Ser Thr Leu Asp Leu Ser Asp Asn Pro Glu Leu Gly Glu Arg Gly Leu
195 200 205

Ile Ser Ala Leu Cys Pro Leu Lys Phe Pro Thr Leu Gln Val Leu Ala
210 215 220

Leu Arg Asn Ala Gly Met Glu Thr Pro Ser Gly Val Cys Ser Ala Leu
225 230 235 240

Ala Ala Ala Arg Val Gln Leu Gln Gly Leu Asp Leu Ser His Asn Ser
245 250 255

Leu Arg Asp Ala Ala Gly Ala Pro Ser Cys Asp Trp Pro Ser Gln Leu
260 265 270

Asn Ser Leu Asn Leu Ser Phe Thr Gly Leu Lys Gln Val Pro Lys Gly
275 280 285

Leu Pro Ala Lys Leu Ser Val Leu Asp Leu Ser Tyr Asn Arg Leu Asp
290 295 300

Arg Asn Pro Ser Pro Asp Glu Leu Pro Gln Val Gly Asn Leu Ser Leu
305 310 315 320

Lys Gly Asn Pro Phe Leu Asp Ser Glu Ser His Ser Glu Lys Phe Asn
325 330 335

Ser Gly Val Val Thr Ala Gly Ala Pro Ser Ser Gln Ala Val Ala Leu
340 345 350

Ser Gly Thr Leu Ala Leu Leu Leu Gly Asp Arg Leu Phe Val
355 360 365

<210> 73 <211> 365 <212> PRT <213> Mus musculus <400> 73

Met Asp Lys Phe Trp Trp His Thr Ala Trp Gly Leu Cys Leu Leu Gln
1 5 10 15

Leu Ser Leu Ala His Pro His Gln Gln Ile Asp Leu Asn Val Thr Cys
20 25 30

Arg Tyr Ala Gly Val Phe His Val Glu Lys Asn Gly Arg Tyr Ser Ile
35 40 45

Ser Arg Thr Glu Ala Ala Asp Leu Cys Gln Ala Phe Asn Ser Thr Leu
50 55 60

Pro Thr Met Asp Gln Met Lys Leu Ala Leu Ser Lys Gly Phe Glu Thr
65 70 75 80

Cys Arg Tyr Gly Phe Ile Glu Gly Asn Val Val Ile Pro Arg Ile His

85

90

95

Pro Asn Ala Ile Cys Ala Ala Asn His Thr Gly Val Tyr Ile Leu Val
 100 105 110

Thr Ser Asn Thr Ser His Tyr Asp Thr Tyr Cys Phe Asn Ala Ser Ala
 115 120 125

Pro Pro Glu Glu Asp Cys Thr Ser Val Thr Asp Leu Pro Asn Ser Phe
 130 135 140

Asp Gly Pro Val Thr Ile Thr Ile Val Asn Arg Asp Gly Thr Arg Tyr
 145 150 155 160

Ser Lys Lys Gly Glu Tyr Arg Thr His Gln Glu Asp Ile Asp Ala Ser
 165 170 175

Asn Ile Ile Asp Asp Asp Val Ser Ser Gly Ser Thr Ile Glu Lys Ser
 180 185 190

Thr Pro Glu Ser Tyr Ile Leu His Thr Tyr Leu Pro Thr Glu Gln Pro
 195 200 205

Thr Gly Asp Gln Asp Asp Ser Phe Phe Ile Arg Ser Thr Leu Ala Thr
 210 215 220

Arg Asp Arg Asp Ser Ser Lys Asp Ser Arg Gly Ser Ser Arg Thr Val
 225 230 235 240

Thr His Gly Ser Glu Leu Ala Gly His Ser Ser Ala Asn Gln Asp Ser
 245 250 255

Gly Val Thr Thr Thr Ser Gly Pro Met Arg Arg Pro Gln Ile Pro Glu
 260 265 270

Trp Leu Ile Ile Leu Ala Ser Leu Leu Ala Leu Ala Leu Ile Leu Ala
 275 280 285

Val Cys Ile Ala Val Asn Ser Arg Arg Arg Cys Gly Gln Lys Lys Lys
 290 295 300

Leu Val Ile Asn Gly Gly Asn Gly Thr Val Glu Asp Arg Lys Pro Ser
 305 310 315 320

Glu Leu Asn Gly Glu Ala Ser Lys Ser Gln Glu Met Val His Leu Val

325

330

335

Asn Lys Glu Pro Ser Glu Thr Pro Asp Gln Cys Met Thr Ala Asp Glu
 340 345 350

Thr Arg Asn Leu Gln Ser Val Asp Met Lys Ile Gly Val
 355 360 365

<210> 74 <211> 371 <212> PRT <213> Mus musculus <400> 74

Met Asn Val Lys Gly Lys Val Ile Leu Leu Met Leu Ile Val Ser Thr
 1 5 10 15

Val Val Val Val Phe Trp Glu Tyr Val Asn Ser Pro Asp Gly Ser Phe
 20 25 30

Leu Trp Ile Tyr His Thr Lys Ile Pro Glu Val Gly Glu Asn Arg Trp
 35 40 45

Gln Lys Asp Trp Trp Phe Pro Ser Trp Phe Lys Asn Gly Thr His Ser
 50 55 60

Tyr Gln Glu Asp Asn Val Glu Gly Arg Arg Glu Lys Gly Arg Asn Gly
 65 70 75 80

Asp Arg Ile Glu Glu Pro Gln Leu Trp Asp Trp Phe Asn Pro Lys Asn
 85 90 95

Arg Pro Asp Val Leu Thr Val Thr Pro Trp Lys Ala Pro Ile Val Trp
 100 105 110

Glu Gly Thr Tyr Asp Thr Ala Leu Leu Glu Lys Tyr Tyr Ala Thr Gln
 115 120 125

Lys Leu Thr Val Gly Leu Thr Val Phe Ala Val Gly Lys Tyr Ile Glu
 130 135 140

His Tyr Leu Glu Asp Phe Leu Glu Ser Ala Asp Met Tyr Phe Met Val
 145 150 155 160

Gly His Arg Val Ile Phe Tyr Val Met Ile Asp Asp Thr Ser Arg Met
 165 170 175

Pro Val Val His Leu Asn Pro Leu His Ser Leu Gln Val Phe Glu Ile
 180 185 190

Arg Ser Glu Lys Arg Trp Gln Asp Ile Ser Met Met Arg Met Lys Thr
 195 200 205

Ile Gly Glu His Ile Leu Ala His Ile Gln His Glu Val Asp Phe Leu
 210 215 220

Phe Cys Met Asp Val Asp Gln Val Phe Gln Asp Asn Phe Gly Val Glu
 225 230 235 240

Thr Leu Gly Gln Leu Val Ala Gln Leu Gln Ala Trp Trp Tyr Lys Ala
 245 250 255

Ser Pro Glu Lys Phe Thr Tyr Glu Arg Arg Glu Leu Ser Ala Ala Tyr
 260 265 270

Ile Pro Phe Gly Glu Gly Asp Phe Tyr Tyr His Ala Ala Ile Phe Gly
 275 280 285

Gly Thr Pro Thr His Ile Leu Asn Leu Thr Arg Glu Cys Phe Lys Gly
 290 295 300

Ile Leu Gln Asp Lys Lys His Asp Ile Glu Ala Gln Trp His Asp Glu
 305 310 315 320

Ser His Leu Asn Lys Tyr Phe Leu Phe Asn Lys Pro Thr Lys Ile Leu
 325 330 335

Ser Pro Glu Tyr Cys Trp Asp Tyr Gln Ile Gly Leu Pro Ser Asp Ile
 340 345 350

Lys Ser Val Lys Val Ala Trp Gln Thr Lys Glu Tyr Asn Leu Val Arg
 355 360 365

Asn Asn Val
 370

<210> 75 <211> 79 <212> DNA <213> Homo sapiens <220> <221> CDS
 <222> (3)..(77) <223>

<400> 75
 gc agt tta acg ggg gag ggg act cag ccc cag cat ttt ggt gat ggg
 Ser Leu Thr Gly Glu Gly Thr Gln Pro Gln His Phe Gly Asp Gly
 1 5 10 15

47

act cga ctc tcc atc cta gag gac ctg aac aa
 Thr Arg Leu Ser Ile Leu Glu Asp Leu Asn
 20 25

79

<210> 76 <211> 25 <212> PRT <213> Homo sapiens <400> 76

Ser Leu Thr Gly Glu Gly Thr Gln Pro Gln His Phe Gly Asp Gly Thr
1 5 10 15

Arg Leu Ser Ile Leu Glu Asp Leu Asn
20 25

<210> 77 <211> 1197 <212> DNA <213> Streptococcus pyogenes <220>
<221> CDS <222> (106)..(1119) <223>

<400> 77
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ggcatgggtca gacagtccac aaattatatt agacggaggt aaaaa atg agt gaa aat 117
Met Ser Glu Asn
1

ata ccg ctg cga gtc caa ttt aag cgc atg aaa gcc gcc gag tgg gct 165
Ile Pro Leu Arg Val Gln Phe Lys Arg Met Lys Ala Ala Glu Trp Ala
5 10 15 20

cgt agt gat gtc atc tta ctg gag agc gag ata gcc ttt gag aca gac 213
Arg Ser Asp Val Ile Leu Leu Glu Ser Glu Ile Gly Phe Glu Thr Asp
25 30 35

aca ggt ttt gcc aga gca ggt gat ggg cac aat cga ttt agt gac ctt 261
Thr Gly Phe Ala Arg Ala Gly Asp Gly His Asn Arg Phe Ser Asp Leu
40 45 50

gga tac att agt cca ctc gat tac aat cta ctg act aac aag cca aat 309
Gly Tyr Ile Ser Pro Leu Asp Tyr Asn Leu Leu Thr Asn Lys Pro Asn
55 60 65

att gat gga tta gcg aca aaa gtc gag acc gct cag aaa cta caa caa 357
Ile Asp Gly Leu Ala Thr Lys Val Glu Thr Ala Gln Lys Leu Gln Gln
70 75 80

aaa gca gat aaa gag acc gtc tat aca aaa gct gaa tcg aag caa gag 405
Lys Ala Asp Lys Glu Thr Val Tyr Thr Lys Ala Glu Ser Lys Gln Glu
85 90 95 100

ctt gac aag aaa tta aat ctc aaa ggt ggc gtt atg aca ggt caa cta 453
Leu Asp Lys Lys Leu Asn Leu Lys Gly Gly Val Met Thr Gly Gln Leu
105 110 115

aaa ttt aag cca gcc gcc act gtt gct tat tcc tcg tca acg ggt gga 501
Lys Phe Lys Pro Ala Ala Thr Val Ala Tyr Ser Ser Ser Thr Gly Gly
120 125 130

gcg gtc aat att gac ttg tcg tct acc aga ggt gct ggt gtt gtt gtc 549
Ala Val Asn Ile Asp Leu Ser Ser Thr Arg Gly Ala Gly Val Val Val
135 140 145

tat tct gac aat gat acc agt gat ggg ccg tta atg agc ttg cgg acg 597
Tyr Ser Asp Asn Asp Thr Ser Asp Gly Pro Leu Met Ser Leu Arg Thr

150 155 160
 ggt aaa gag acc ttt aat caa tcg gcg ctt ttt gtc gac tat aag ggg 645
 Gly Lys Glu Thr Phe Asn Gln Ser Ala Leu Phe Val Asp Tyr Lys Gly
 165 170 175 180
 aca aca aat gcc gtt aat att gcg atg cgt cac gca acc acc ccc aat 693
 Thr Thr Asn Ala Val Asn Ile Ala Met Arg His Ala Thr Thr Pro Asn
 185 190 195
 ttt tca tcg gcg ctt aat att act agc ggc aat gaa aat ggt agt gca 741
 Phe Ser Ser Ala Leu Asn Ile Thr Ser Gly Asn Glu Asn Gly Ser Ala
 200 205 210
 atg cag cta cga ggg tca gaa aaa gcg cta gga acg cta aaa att act 789
 Met Gln Leu Arg Gly Ser Glu Lys Ala Leu Gly Thr Leu Lys Ile Thr
 215 220 225
 cat gag aac cca agt att gga gcg gat tat gat aaa aat gcg gca cgt 837
 His Glu Asn Pro Ser Ile Gly Ala Asp Tyr Asp Lys Asn Ala Ala Arg
 230 235 240
 tat cca ttg ata ttg tca aaa aga caa aac ggt gca gga aca gcc gct 885
 Tyr Pro Leu Ile Leu Ser Lys Arg Gln Asn Gly Ala Gly Thr Ala Ala
 245 250 255 260
 cag gga atc tac att aac tca acc tca ggc acg aca ggg aag ttg ctt 933
 Gln Gly Ile Tyr Ile Asn Ser Thr Ser Gly Thr Thr Gly Lys Leu Leu
 265 270 275
 agg att aga aac ctt agt gat gat aag ttc tac gtc aag tct gac ggt 981
 Arg Ile Arg Asn Leu Ser Asp Asp Lys Phe Tyr Val Lys Ser Asp Gly
 280 285 290
 ggt ttt tat gcc aag gaa act tcg cag att gat ggc aac ctg aaa ctc 1029
 Gly Phe Tyr Ala Lys Glu Thr Ser Gln Ile Asp Gly Asn Leu Lys Leu
 295 300 305
 aag gac ccc aca gcg aat gat cat gcg gca acc aaa gct tat gta gat 1077
 Lys Asp Pro Thr Ala Asn Asp His Ala Ala Thr Lys Ala Tyr Val Asp
 310 315 320
 aaa gca att tct gag tta aaa aaa ctc ata cta aaa aaa tag 1119
 Lys Ala Ile Ser Glu Leu Lys Lys Leu Ile Leu Lys Lys
 325 330 335
 attaaggagg ataaatgagc agagacccaa cacttatttt agacgagtca aacctcgтта 1179
 ttggtaagga tggacgtg 1197

<210> 78 <211> 337 <212> PRT <213> Streptococcus pyogenes <400> 78

Met Ser Glu Asn Ile Pro Leu Arg Val Gln Phe Lys Arg Met Lys Ala
 1 5 10 15

Ala Glu Trp Ala Arg Ser Asp Val Ile Leu Leu Glu Ser Glu Ile Gly
 20 25 30

Phe Glu Thr Asp Thr Gly Phe Ala Arg Ala Gly Asp Gly His Asn Arg
 35 40 45

Phe Ser Asp Leu Gly Tyr Ile Ser Pro Leu Asp Tyr Asn Leu Leu Thr
 50 55 60

Asn Lys Pro Asn Ile Asp Gly Leu Ala Thr Lys Val Glu Thr Ala Gln
 65 70 75 80

Lys Leu Gln Gln Lys Ala Asp Lys Glu Thr Val Tyr Thr Lys Ala Glu
 85 90 95

Ser Lys Gln Glu Leu Asp Lys Lys Leu Asn Leu Lys Gly Gly Val Met
 100 105 110

Thr Gly Gln Leu Lys Phe Lys Pro Ala Ala Thr Val Ala Tyr Ser Ser
 115 120 125

Ser Thr Gly Gly Ala Val Asn Ile Asp Leu Ser Ser Thr Arg Gly Ala
 130 135 140

Gly Val Val Val Tyr Ser Asp Asn Asp Thr Ser Asp Gly Pro Leu Met
 145 150 155 160

Ser Leu Arg Thr Gly Lys Glu Thr Phe Asn Gln Ser Ala Leu Phe Val
 165 170 175

Asp Tyr Lys Gly Thr Thr Asn Ala Val Asn Ile Ala Met Arg His Ala
 180 185 190

Thr Thr Pro Asn Phe Ser Ser Ala Leu Asn Ile Thr Ser Gly Asn Glu
 195 200 205

Asn Gly Ser Ala Met Gln Leu Arg Gly Ser Glu Lys Ala Leu Gly Thr
 210 215 220

Leu Lys Ile Thr His Glu Asn Pro Ser Ile Gly Ala Asp Tyr Asp Lys
 225 230 235 240

Asn Ala Ala Arg Tyr Pro Leu Ile Leu Ser Lys Arg Gln Asn Gly Ala
 245 250 255

Gly Thr Ala Ala Gln Gly Ile Tyr Ile Asn Ser Thr Ser Gly Thr Thr
 260 265 270

Gly Lys Leu Leu Arg Ile Arg Asn Leu Ser Asp Asp Lys Phe Tyr Val
 275 280 285

Lys Ser Asp Gly Gly Phe Tyr Ala Lys Glu Thr Ser Gln Ile Asp Gly
 290 295 300

Asn Leu Lys Leu Lys Asp Pro Thr Ala Asn Asp His Ala Ala Thr Lys
 305 310 315 320

Ala Tyr Val Asp Lys Ala Ile Ser Glu Leu Lys Lys Leu Ile Leu Lys
 325 330 335

Lys

<210> 79 <211> 1497 <212> DNA <213> Bacteriophage T270 <220> <221>
 CDS <222> (286)..(1374) <223>

<400> 79
 gaagacattg taaaatacaa tacaattatg agagatcaat ataaaaaagg tagcaatgaa 60
 tataatgcgt ttcaacaaga tattgagcaa gataaaaacc agatagcact attgttcaac 120
 gaacatcaat tgcttgaaaa tatcgataat tagttaatct aaaacaaaaa gccccacgct 180
 ctcaaagttt ggcgactctg agcgtgaggc aagacagtat aagaaacaac cattaanaag 240
 gtcattttct tgtacctatt ttatcaaatt gaaagatggt atgca atg aaa att aaa 297
 Met Lys Ile Lys
 1
 tca tat aaa aag gaa aat ggt gaa act gct tat aaa ttt ctt ttg tat 345
 Ser Tyr Lys Lys Glu Asn Gly Glu Thr Ala Tyr Lys Phe Leu Leu Tyr
 5 10 15 20
 gcc ggt tat gtt aat gga aag aga aaa tat att agg cga gaa ggt ttc 393
 Ala Gly Tyr Val Asn Gly Lys Arg Lys Tyr Ile Arg Arg Glu Gly Phe
 25 30 35
 aaa act aag cag gct gca agg gaa acc tta att agt tta caa gct gaa 441
 Lys Thr Lys Gln Ala Ala Arg Glu Thr Leu Ile Ser Leu Gln Ala Glu
 40 45 50
 ctt gat aaa cct aaa tca agt atg aca ttt gga gca ttg aca gat caa 489
 Leu Asp Lys Pro Lys Ser Ser Met Thr Phe Gly Ala Leu Thr Asp Gln
 55 60 65
 tgg cta aag gaa tat gaa aaa acc gtt cag ggc agt acc tac tta aaa 537
 Trp Leu Lys Glu Tyr Glu Lys Thr Val Gln Gly Ser Thr Tyr Leu Lys
 70 75 80
 aca gaa aga aat att aat aaa cat att ttg cca aaa ctt gat aaa gtg 585
 Thr Glu Arg Asn Ile Asn Lys His Ile Leu Pro Lys Leu Asp Lys Val
 85 90 95 100

aag att gga gac atc aat cca cta ctt atc cag cgg ctt act gaa gaa Lys Ile Gly Asp Ile Asn Pro Leu Leu Ile Gln Arg Leu Thr Glu Glu 105 110 115	633
tgg tgc aac gat tta aaa tat gga gga aaa att ctt ggg ctt gtt agg Trp Cys Asn Asp Leu Lys Tyr Gly Gly Lys Ile Leu Gly Leu Val Arg 120 125 130	681
aat atc tta aat cta gct gtt aga tac gga tat atc aat aac aat cca Asn Ile Leu Asn Leu Ala Val Arg Tyr Gly Tyr Ile Asn Asn Asn Pro 135 140 145	729
gct ttg cca att aca cct cca aaa ata aaa agg aaa aga aaa atg aat Ala Leu Pro Ile Thr Pro Pro Lys Ile Lys Arg Lys Arg Lys Met Asn 150 155 160	777
aat aat ttt tat aca ctt gat caa ctt aaa caa ttc ctt gaa cta gtt Asn Asn Phe Tyr Thr Leu Asp Gln Leu Lys Gln Phe Leu Glu Leu Val 165 170 175 180	825
gaa aaa act gac aac att gaa aaa ata gcc ttg ttt aga tta tta gca Glu Lys Thr Asp Asn Ile Glu Lys Ile Ala Leu Phe Arg Leu Leu Ala 185 190 195	873
ttt act gga ata cga aaa ggg gag ctt ctg gca cta act tgg gat gat Phe Thr Gly Ile Arg Lys Gly Glu Leu Ala Leu Thr Trp Asp Asp 200 205 210	921
ttg aat ggt aat act cta tca att aat aaa gct gtc aca cgt act caa Leu Asn Gly Asn Thr Leu Ser Ile Asn Lys Ala Val Thr Arg Thr Gln 215 220 225	969
gtt gga cta gaa ata gat gtt acg aag aca aaa tca agc gat aga tta Val Gly Leu Glu Ile Asp Val Thr Lys Thr Lys Ser Ser Asp Arg Leu 230 235 240	1017
atc agc tta gat gat gaa act ttg gaa att tta caa gaa ctt cat gaa Ile Ser Leu Asp Asp Glu Thr Leu Glu Ile Leu Gln Glu Leu His Glu 245 250 255 260	1065
act ttt cct act tct act ctt atg ttc caa tct aaa tca ggt gga att Thr Phe Pro Thr Ser Thr Leu Met Phe Gln Ser Lys Ser Gly Gly Ile 265 270 275	1113
atg acg cca agt tta cca cga aaa tgg cta ttg caa att atc aaa ggg Met Thr Pro Ser Leu Pro Arg Lys Trp Leu Leu Gln Ile Ile Lys Gly 280 285 290	1161
ata gac tta cca caa atc aca att cat ggt ttc agg cac act cat gca Ile Asp Leu Pro Gln Ile Thr Ile His Gly Phe Arg His Thr His Ala 295 300 305	1209
agc tta ctt ttc gaa tca ggt cta tcc ttg aaa cag gtg caa cat aga Ser Leu Leu Phe Glu Ser Gly Leu Ser Leu Lys Gln Val Gln His Arg 310 315 320	1257
tta ggg cat gga gat tta cag aca act atg aac gta tat act cac atc Leu Gly His Gly Asp Leu Gln Thr Thr Met Asn Val Tyr Thr His Ile 325 330 335 340	1305

acg caa tcg gca att gat gac att gga act aaa ttc aat caa ttt gtt 1353
 Thr Gln Ser Ala Ile Asp Asp Ile Gly Thr Lys Phe Asn Gln Phe Val
 345 350 355

act aac aag caa cta gat tga caactaattc tcaacaaacg ttaatttaac 1404
 Thr Asn Lys Gln Leu Asp
 360

aacattcaag taactcccac cagctccatc aatgcttacc gtaagtaatc ataacttact 1464
 aaaaccttgt tacatcaagg ttttttcttt ttg 1497

<210> 80 <211> 362 <212> PRT <213> Bacteriophage T270 <400> 80

Met Lys Ile Lys Ser Tyr Lys Lys Glu Asn Gly Glu Thr Ala Tyr Lys
 1 5 10 15

Phe Leu Leu Tyr Ala Gly Tyr Val Asn Gly Lys Arg Lys Tyr Ile Arg
 20 25 30

Arg Glu Gly Phe Lys Thr Lys Gln Ala Ala Arg Glu Thr Leu Ile Ser
 35 40 45

Leu Gln Ala Glu Leu Asp Lys Pro Lys Ser Ser Met Thr Phe Gly Ala
 50 55 60

Leu Thr Asp Gln Trp Leu Lys Glu Tyr Glu Lys Thr Val Gln Gly Ser
 65 70 75 80

Thr Tyr Leu Lys Thr Glu Arg Asn Ile Asn Lys His Ile Leu Pro Lys
 85 90 95

Leu Asp Lys Val Lys Ile Gly Asp Ile Asn Pro Leu Leu Ile Gln Arg
 100 105 110

Leu Thr Glu Glu Trp Cys Asn Asp Leu Lys Tyr Gly Gly Lys Ile Leu
 115 120 125

Gly Leu Val Arg Asn Ile Leu Asn Leu Ala Val Arg Tyr Gly Tyr Ile
 130 135 140

Asn Asn Asn Pro Ala Leu Pro Ile Thr Pro Pro Lys Ile Lys Arg Lys
 145 150 155 160

Arg Lys Met Asn Asn Asn Phe Tyr Thr Leu Asp Gln Leu Lys Gln Phe
 165 170 175

Leu Glu Leu Val Glu Lys Thr Asp Asn Ile Glu Lys Ile Ala Leu Phe
 180 185 190

Arg Leu Leu Ala Phe Thr Gly Ile Arg Lys Gly Glu Leu Leu Ala Leu
 195 200 205

Thr Trp Asp Asp Leu Asn Gly Asn Thr Leu Ser Ile Asn Lys Ala Val
 210 215 220

Thr Arg Thr Gln Val Gly Leu Glu Ile Asp Val Thr Lys Thr Lys Ser
 225 230 235 240

Ser Asp Arg Leu Ile Ser Leu Asp Asp Glu Thr Leu Glu Ile Leu Gln
 245 250 255

Glu Leu His Glu Thr Phe Pro Thr Ser Thr Leu Met Phe Gln Ser Lys
 260 265 270

Ser Gly Gly Ile Met Thr Pro Ser Leu Pro Arg Lys Trp Leu Leu Gln
 275 280 285

Ile Ile Lys Gly Ile Asp Leu Pro Gln Ile Thr Ile His Gly Phe Arg
 290 295 300

His Thr His Ala Ser Leu Leu Phe Glu Ser Gly Leu Ser Leu Lys Gln
 305 310 315 320

Val Gln His Arg Leu Gly His Gly Asp Leu Gln Thr Thr Met Asn Val
 325 330 335

Tyr Thr His Ile Thr Gln Ser Ala Ile Asp Asp Ile Gly Thr Lys Phe
 340 345 350

Asn Gln Phe Val Thr Asn Lys Gln Leu Asp
 355 360

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ttt gag gct cta gtc aaa gaa aca aga gaa gca gta gca aac gct gac Phe Glu Ala Leu Val Lys Glu Thr Arg Glu Ala Val Ala Asn Ala Asp 285 290 295	1036
gaa tct tgg aaa act aaa act gta aaa aaa tac ggt gaa tct gaa aca Glu Ser Trp Lys Thr Lys Thr Val Lys Lys Tyr Gly Glu Ser Glu Thr 300 305 310	1084
aaa tct cct gtt gta aaa gaa gag aac aaa gtt gaa gac cct caa tca Lys Ser Pro Val Val Lys Glu Glu Asn Lys Val Glu Asp Pro Gln Ser 315 320 325	1132
cct aaa ttt gat aac caa caa gag gtt aaa act acg gct ggt aaa gct Pro Lys Phe Asp Asn Gln Gln Glu Val Lys Thr Thr Ala Gly Lys Ala 330 335 340	1180
gaa gaa aca aca caa cca gtt gca caa cca tta gtt aaa att cca cag Glu Glu Thr Thr Gln Pro Val Ala Gln Pro Leu Val Lys Ile Pro Gln 345 350 355 360	1228
ggc aca att aca ggt gaa att gtg aaa ggt ccg gaa tat cca acg atg Gly Thr Ile Thr Gly Glu Ile Val Lys Gly Pro Glu Tyr Pro Thr Met 365 370 375	1276
gaa aat aaa acg tta caa ggt gaa atc gtt caa ggt cca gat ttc cca Glu Asn Lys Thr Leu Gln Gly Glu Ile Val Gln Gly Pro Asp Phe Pro 380 385 390	1324
aca atg gaa caa agc ggt cca tct tta agc gac aat tat act caa ccg Thr Met Glu Gln Ser Gly Pro Ser Leu Ser Asp Asn Tyr Thr Gln Pro 395 400 405	1372
acg aca ccg aac cct att tta gaa ggt ctt gaa ggt agc tca tct aaa Thr Thr Pro Asn Pro Ile Leu Glu Gly Leu Glu Gly Ser Ser Ser Lys 410 415 420	1420
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gaa gct tct caa tat ggt ccg aga ccg caa ttt aac aaa aca cct aag Glu Ala Ser Gln Tyr Gly Pro Arg Pro Gln Phe Asn Lys Thr Pro Lys 460 465 470	1564
tat gtg aaa tat aga gat gct ggt aca ggt att cgt gaa tac aac gat Tyr Val Lys Tyr Arg Asp Ala Gly Thr Gly Ile Arg Glu Tyr Asn Asp 475 480 485	1612
gga aca ttt gga tat gaa gcg aga cca aga ttc aac aag cca tca gaa Gly Thr Phe Gly Tyr Glu Ala Arg Pro Arg Phe Asn Lys Pro Ser Glu 490 495 500	1660

aca aac gca tac aac gta acg aca aat caa gat ggc aca gta tca tac Thr Asn Ala Tyr Asn Val Thr Thr Asn Gln Asp Gly Thr Val Ser Tyr 505 510 515 520	1708
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gta aca aca cat gca aac ggc caa gta tca tac gga gct cgc cca aca Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr 540 545 550	1804
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gaa aca aat gca tat aac gta aca aca cac gga aat ggc caa gta tca Glu Thr Asn Ala Tyr Asn Val Thr Thr His Gly Asn Gly Gln Val Ser 585 590 595 600	1948
tat gga gct cgt ccg aca tac aag aaa cca agt aaa aca aat gca tat Tyr Gly Ala Arg Pro Thr Tyr Lys Lys Pro Ser Lys Thr Asn Ala Tyr 605 610 615	1996
aac gta aca aca cat gca aac ggc caa gtg tca tac gga gct cgc cca Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro 620 625 630	2044
aca caa aac aag cca agc gaa aca aac gca tat aac gta aca aca cat Thr Gln Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His 635 640 645	2092
gca aat ggc caa gta tca tac gga gct cgc cca aca caa aac aag cca Ala Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys Pro 650 655 660	2140
agc gaa aca aac gca tat aac gta aca aca cac gga aac ggt caa gtg Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His Gly Asn Gly Gln Val 665 670 675 680	2188
tca tac ggc gct cgt ccg aca tac aac aag cca agt aaa aca aat gca Ser Tyr Gly Ala Arg Pro Thr Tyr Asn Lys Pro Ser Lys Thr Asn Ala 685 690 695	2236
tac aat gta aca aca cat gca gat ggt act gcg aca tat ggt cct aga Tyr Asn Val Thr Thr His Ala Asp Gly Thr Ala Thr Tyr Gly Pro Arg 700 705 710	2284
gta aca aaa taa gtttataact ctatccatag acatacagtc aatacaatac Val Thr Lys 715	2336
aaaacattac gtatctttac aacagtaatc atgcattcta tgatgcttct aactgaatta	2396
aagcatcgaa caatcgaaag catattttcta aattatttat tcattatagt cttaaacata	2456

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 aatccgcttc aacttcaacc tacctcattc agtaaccaa cgaatccgct tcatccaaaa 2876
 tcaaccattc taacgcacat actcaaatat agcagctgca cccataccga caccaataca 2936
 catcgtaacc atgccgtaac ggctatcggg acgtctaccc atttcattaa gtaaacgcgc 2996
 ggtaaacatt gctcctgtag cacctaattg atgacctaaa gcaata 3042

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 20 25 30

Ser Lys Glu Ser Arg Val Asn Glu Asn Ser Lys Tyr Gly Thr Leu Ile
 35 40 45

Ser Asp Trp Tyr Leu Lys Gly Arg Leu Thr Ser Leu Glu Ser Gln Phe
 50 55 60

Ile Asn Ala Leu Asp Ile Leu Glu Thr Tyr His Tyr Gly Glu Lys Glu
 65 70 75 80

Tyr Lys Asp Ala Lys Asp Lys Leu Met Thr Arg Ile Leu Gly Glu Asp
 85 90 95

Gln Tyr Leu Leu Glu Arg Lys Lys Val Gln Tyr Glu Glu Tyr Lys Lys
 100 105 110

Leu Tyr Gln Lys Tyr Lys Glu Glu Asn Pro Thr Ser Lys Gly Leu Lys
 115 120 125

Leu Lys Thr Phe Asp Gln Tyr Thr Ile Glu Asp Leu Thr Met Arg Glu
 130 135 140

Tyr Asn Glu Leu Thr Glu Ser Leu Lys Ser Ala Val Lys Asp Phe Glu
 145 150 155 160

Lys Asp Val Glu Lys Ile Glu Asn Gln His His Asp Leu Lys Pro Phe
 165 170 175

Thr Asp Glu Met Glu Glu Lys Ala Thr Ser Arg Val Asp Asp Leu Ala
 180 185 190

Asn Lys Ala Tyr Ser Val Tyr Phe Ala Phe Val Arg Asp Thr Gln His
 195 200 205

Lys Thr Glu Ala Leu Glu Leu Lys Ala Lys Val Asp Leu Val Leu Gly
 210 215 220

Asp Glu Asp Lys Pro His Arg Ile Ser Asn Glu Arg Ile Glu Lys Glu
 225 230 235 240

Met Ile Lys Asp Leu Glu Ser Ile Ile Glu Asp Phe Phe Ile Glu Thr
 245 250 255

Gly Leu Asn Lys Pro Gly Asn Ile Thr Ser Tyr Asp Ser Ser Lys His
 260 265 270

His Tyr Lys Asn His Ser Glu Gly Phe Glu Ala Leu Val Lys Glu Thr
 275 280 285

Arg Glu Ala Val Ala Asn Ala Asp Glu Ser Trp Lys Thr Lys Thr Val
 290 295 300

Lys Lys Tyr Gly Glu Ser Glu Thr Lys Ser Pro Val Val Lys Glu Glu
 305 310 315 320

Asn Lys Val Glu Asp Pro Gln Ser Pro Lys Phe Asp Asn Gln Gln Glu
 325 330 335

Val Lys Thr Thr Ala Gly Lys Ala Glu Glu Thr Thr Gln Pro Val Ala
 340 345 350

Gln Pro Leu Val Lys Ile Pro Gln Gly Thr Ile Thr Gly Glu Ile Val
 355 360 365

Lys Gly Pro Glu Tyr Pro Thr Met Glu Asn Lys Thr Leu Gln Gly Glu
 370 375 380

Ile Val Gln Gly Pro Asp Phe Pro Thr Met Glu Gln Ser Gly Pro Ser
385 390 395 400

Leu Ser Asp Asn Tyr Thr Gln Pro Thr Thr Pro Asn Pro Ile Leu Glu
405 410 415

Gly Leu Glu Gly Ser Ser Ser Lys Leu Glu Ile Lys Pro Gln Gly Thr
420 425 430

Glu Ser Thr Leu Lys Gly Ile Gln Gly Glu Ser Ser Asp Ile Glu Val
435 440 445

Lys Pro Gln Ala Thr Glu Thr Thr Glu Ala Ser Gln Tyr Gly Pro Arg
450 455 460

Pro Gln Phe Asn Lys Thr Pro Lys Tyr Val Lys Tyr Arg Asp Ala Gly
465 470 475 480

Thr Gly Ile Arg Glu Tyr Asn Asp Gly Thr Phe Gly Tyr Glu Ala Arg
485 490 495

Pro Arg Phe Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr
500 505 510

Asn Gln Asp Gly Thr Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys
515 520 525

Ala Ser Glu Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln
530 535 540

Val Ser Tyr Gly Ala Arg Pro Thr Gln Lys Lys Pro Ser Glu Thr Asn
545 550 555 560

Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly Ala
565 570 575

Arg Pro Thr Tyr Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val Thr
580 585 590

Thr His Gly Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Tyr Lys
595 600 605

Lys Pro Ser Lys Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly
610 615 620

Gln Val Ser Tyr Gly Ala Arg Pro Thr Gln Asn Lys Pro Ser Glu Thr
625 630 635 640

Asn Ala Tyr Asn Val Thr Thr His Ala Asn Gly Gln Val Ser Tyr Gly
645 650 655

Ala Arg Pro Thr Gln Asn Lys Pro Ser Glu Thr Asn Ala Tyr Asn Val
660 665 670

Thr Thr His Gly Asn Gly Gln Val Ser Tyr Gly Ala Arg Pro Thr Tyr
675 680 685

Asn Lys Pro Ser Lys Thr Asn Ala Tyr Asn Val Thr Thr His Ala Asp
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Gly Thr Ala Thr Tyr Gly Pro Arg Val Thr Lys
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aagcaaggct atctaataaa agaacggctc aactgaagat gaaagaaaaa ttttaattca 180
tatgaatgac ggcgagcaag accatgctga acaattatta gctcaagtga atcaattatt 240
ggcagataaa aatcattttac atcttgTTTT tgaataatat ctctattacg caagtgtgct 300
gtatttctaaa gtgccattgt gttttctatt ttttaataaa acctcagcac attatgaaca 360
actttctatt ttctatatct cttaaaacca tttccgaaat taaacctcag cacattcaaa 420
attccattttt attcttaaaa atatttttta actcatatgt aataaaccgc tttcattata 480
aaaaatatct atatatttta tctgttttta ttaatcggaa tagcgtgatt ttgcggtttt 540
aagccttttta ctctctgaat aaatctttgg acaaaatttt tatTTTtataa gttgtaaaac 600
ttaccttttaa atttaattat aaatatagat ttttagtattg caatacataa ttcgttatat 660
tatgatgact ttacaaatac atacagggggg tattaat ttg aaa aag aaa aac att 715
Leu Lys Lys Lys Asn Ile
1 5
tat tca att cgt aaa cta ggt gta ggt att gca tct gta act tta ggt 763
Tyr Ser Ile Arg Lys Leu Gly Val Gly Ile Ala Ser Val Thr Leu Gly
10 15 20
aca tta ctt ata tct ggt ggc gta aca cct gct gca aat gct gcg caa 811
Thr Leu Leu Ile Ser Gly Gly Val Thr Pro Ala Ala Asn Ala Ala Gln

25	30	35	
cac gat gaa gct caa caa aat gct ttt tat caa gtg tta aat atg cct His Asp Glu Ala Gln Gln Asn Ala Phe Tyr Gln Val Leu Asn Met Pro 40 45 50			859
aac tta aac gct gat caa cgt aat ggt ttt atc caa agc ctt aaa gat Asn Leu Asn Ala Asp Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp 55 60 65 70			907
gat cca agc caa agt gct aac gtt tta ggt gaa gct caa aaa ctt aat Asp Pro Ser Gln Ser Ala Asn Val Leu Gly Glu Ala Gln Lys Leu Asn 75 80 85			955
gac tct caa gct cca aaa gct gat gcg caa caa aat aag ttc aac aaa Asp Ser Gln Ala Pro Lys Ala Asp Ala Gln Gln Asn Lys Phe Asn Lys 90 95 100			1003
gat caa caa agc gcc ttc tat gaa atc ttg aac atg cct aac tta aac Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn 105 110 115			1051
gaa gag caa cgc aat ggt ttc att caa agt ctt aaa gac gat cca agc Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser 120 125 130			1099
caa agc act aac gtt tta ggt gaa gct aaa aaa tta aac gaa tct caa Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser Gln 135 140 145 150			1147
gca ccg aaa gct gac aac aat ttc aac aaa gaa caa caa aat gct ttc Ala Pro Lys Ala Asp Asn Asn Phe Asn Lys Glu Gln Gln Asn Ala Phe 155 160 165			1195
tat gaa atc ttg aac atg cct aac ttg aac gaa gaa caa cgc aat ggt Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly 170 175 180			1243
ttc atc caa agc tta aaa gat gac cca agt caa agt gct aac ctt tta Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu 185 190 195			1291
gca gaa gct aaa aag tta aat gaa tct caa gca ccg aaa gct gat aac Ala Glu Ala Lys Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn 200 205 210			1339
aaa ttc aac aaa gaa caa caa aat gct ttc tat gaa atc tta cat tta Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu 215 220 225 230			1387
cct aac tta aat gaa gaa caa cgc aat ggt ttc atc caa agc tta aaa Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys 235 240 245			1435
gat gac cca agc caa agc gct aac ctt tta gca gaa gct aaa aag cta Asp Asp Pro Ser Gln Ser Ala Asn Leu Ala Glu Ala Lys Lys Leu 250 255 260			1483
aat gat gca caa gca cca aaa gct gac aac aaa ttc aac aaa gaa caa Asn Asp Ala Gln Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln 265 270 275 280 285 290			1531

265	270	275	
caa aat gct ttc tat gaa att tta cat tta cct aac tta act gaa gaa Gln Asn Ala Phe Tyr Glu Ile Leu His Leu Pro Asn Leu Thr Glu Glu 280 285 290			1579
caa cgt aac ggc ttc atc caa agc ctt aaa gac gat cct tca gtg agc Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Val Ser 295 300 305 310			1627
aaa gaa att tta gca gaa gct aaa aag cta aac gat gct caa gca cca Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro 315 320 325			1675
aaa gag gaa gac aac aac aag cct ggt aaa gaa gac ggc aac aaa cct Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 330 335 340			1723
ggt aaa gaa gac ggc aac aaa cct ggt aaa gaa gac aac aaa aaa cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Asn Lys Lys Pro 345 350 355			1771
ggc aaa gaa gac ggc aac aaa cct ggt aaa gaa gac aac aaa aaa cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Asn Lys Lys Pro 360 365 370			1819
ggc aaa gaa gat ggc aac aaa cct ggt aaa gaa gac ggc aac aag cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 375 380 385 390			1867
ggt aaa gaa gat ggc aac aag cct ggt aaa gaa gat ggc aac aag cct Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro 395 400 405			1915
ggt aaa gaa gac ggc aac gga gta cat gtc gtt aaa cct ggt gat aca Gly Lys Glu Asp Gly Asn Gly Val His Val Val Lys Pro Gly Asp Thr 410 415 420			1963
gta aat gac att gca aaa gca aac ggc act act gct gac aaa att gct Val Asn Asp Ile Ala Lys Ala Asn Gly Thr Thr Ala Asp Lys Ile Ala 425 430 435			2011
gca gat aac aaa tta gct gat aaa aac atg atc aaa cct ggt caa gaa Ala Asp Asn Lys Leu Ala Asp Lys Asn Met Ile Lys Pro Gly Gln Glu 440 445 450			2059
ctt gtt gtt gat aag aag caa cca gca aac cat gca gat gct aac aaa Leu Val Val Asp Lys Lys Gln Pro Ala Asn His Ala Asp Ala Asn Lys 455 460 465 470			2107
gct caa gca tta cca gaa act ggt gaa gaa aat cca ttc atc ggt aca Ala Gln Ala Leu Pro Glu Thr Gly Glu Glu Asn Pro Phe Ile Gly Thr 475 480 485			2155
act gta ttt ggt gga tta tca tta gcg tta ggt gca gcg tta tta gct Thr Val Phe Gly Gly Leu Ser Leu Ala Leu Gly Ala Ala Leu Leu Ala 490 495 500			2203
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Ala Ala Asn Ala Ala Gln His Asp Glu Ala Gln Gln Asn Ala Phe Tyr
 35 40 45

Gln Val Leu Asn Met Pro Asn Leu Asn Ala Asp Gln Arg Asn Gly Phe
 50 55 60

Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Val Leu Gly
 65 70 75 80

Glu Ala Gln Lys Leu Asn Asp Ser Gln Ala Pro Lys Ala Asp Ala Gln
 85 90 95

Gln Asn Lys Phe Asn Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu
 100 105 110

Asn Met Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser
 115 120 125

Leu Lys Asp Asp Pro Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys
 130 135 140

Lys Leu Asn Glu Ser Gln Ala Pro Lys Ala Asp Asn Asn Phe Asn Lys
 145 150 155 160

Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu Asn
 165 170 175

Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser
 180 185 190

Gln Ser Ala Asn Leu Leu Ala Glu Ala Lys Lys Leu Asn Glu Ser Gln
 195 200 205

Ala Pro Lys Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe
 210 215 220

Tyr Glu Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly
 225 230 235 240

Phe Ile Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu
 245 250 255

Ala Glu Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala Asp Asn
 260 265 270

Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu
 275 280 285

Pro Asn Leu Thr Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys
 290 295 300

Asp Asp Pro Ser Val Ser Lys Glu Ile Leu Ala Glu Ala Lys Lys Leu
 305 310 315 320

Asn Asp Ala Gln Ala Pro Lys Glu Glu Asp Asn Asn Lys Pro Gly Lys
 325 330 335

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 340 345 350

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 355 360 365

Glu Asp Asn Lys Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 370 375 380

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Lys Pro Gly Lys
 385 390 395 400

Glu Asp Gly Asn Lys Pro Gly Lys Glu Asp Gly Asn Gly Val His Val
 405 410 415

Val Lys Pro Gly Asp Thr Val Asn Asp Ile Ala Lys Ala Asn Gly Thr
 420 425 430

Thr Ala Asp Lys Ile Ala Ala Asp Asn Lys Leu Ala Asp Lys Asn Met
 435 440 445

Ile Lys Pro Gly Gln Glu Leu Val Val Asp Lys Lys Gln Pro Ala Asn
 450 455 460

His Ala Asp Ala Asn Lys Ala Gln Ala Leu Pro Glu Thr Gly Glu Glu
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Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30
ccg agc tcg aga gga tcc aaa gct gat gcg caa caa aat aac ttc aac 144
Pro Ser Ser Arg Gly Ser Lys Ala Asp Ala Gln Gln Asn Asn Phe Asn
35 40 45
aaa gat caa caa agc gcc ttc tat gaa atc ttg aac atg cct aac tta 192
Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu
50 55 60
aac gaa gcg caa cgc aac ggc ttc att caa agt ctt aaa gac gac cca 240
Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro
65 70 75 80
agc caa agc act aac gtt tta ggt gaa gct aaa aaa tta aac gaa tct 288
Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser
85 90 95
caa gca ggg aaa cta gtt tag aaa gct tgatccggc 324
Gln Ala Gly Lys Leu Val Lys Ala
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Met Arg Gly Ser His His His His His His Gly Met Ala Ser Met Thr
1 5 10 15

Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30

Pro Ser Ser Arg Gly Ser Lys Ala Asp Ala Gln Gln Asn Asn Phe Asn
35 40 45

Lys Asp Gln Gln Ser Ala Phe Tyr Glu Ile Leu Asn Met Pro Asn Leu
50 55 60

Asn Glu Ala Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys Asp Asp Pro
65 70 75 80

Ser Gln Ser Thr Asn Val Leu Gly Glu Ala Lys Lys Leu Asn Glu Ser
85 90 95

Gln Ala Gly Lys Leu Val Lys Ala
100

<210> 91 <211> 60 <212> PRT <213> Staphylococcus aureus <400> 91

Thr Ala Asp Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu
1 5 10 15

Ile Leu His Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile
20 25 30

Gln Ser Leu Lys Asp Asp Pro Ser Gln Ser Ala Asn Leu Leu Ala Glu
35 40 45

Ala Lys Lys Leu Asn Asp Ala Gln Ala Pro Lys Ala
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1

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Tyr Gly Lys Ile Ile Phe Val Leu Leu Ser Ala Ile Val Ser Ile
5 10 15

tca gca tca agt acc act ggt gtg gca atg cac act tca acc tct tct 154
Ser Ala Ser Ser Thr Thr Gly Val Ala Met His Thr Ser Thr Ser Ser
20 25 30

tca gtc aca aag agt tac atc tca tca cag aca aat gat acg cac aaa 202
Ser Val Thr Lys Ser Tyr Ile Ser Ser Gln Thr Asn Asp Thr His Lys
35 40 45

cgg gac aca tat gca gcc act cct aga gct cat gaa gtt tca gaa att 250
Arg Asp Thr Tyr Ala Ala Thr Pro Arg Ala His Glu Val Ser Glu Ile
50 55 60 65

tct gtt aga act gtt tac cct cca gaa gag gaa acc gga gaa agg gta	298
Ser Val Arg Thr Val Tyr Pro Pro Glu Glu Glu Thr Gly Glu Arg Val	
70 75 80	
caa ctt gcc cat cat ttc tct gaa cca gag ata aca ctc att att ttt	346
Gln Leu Ala His His Phe Ser Glu Pro Glu Ile Thr Leu Ile Ile Phe	
85 90 95	
ggg gtg atg gct ggt gtt att gga acg atc ctc tta att tct tac ggt	394
Gly Val Met Ala Gly Val Ile Gly Thr Ile Leu Leu Ile Ser Tyr Gly	
100 105 110	
att cgc cga ctg ata aag aaa agc cca tct gat gta aaa cct ctc ccc	442
Ile Arg Arg Leu Ile Lys Lys Ser Pro Ser Asp Val Lys Pro Leu Pro	
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Phe Gly Val Met Ala Gly Val Ile Gly Thr Ile Leu Leu Ile Ser Tyr
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gga	ggt	gca	tca	aat	gaa	gca	gga	aaa	tgg	atg	gat	gat	acc	tgc		3316	
Gly	Gly	Ala	Ser	Asn	Glu	Ala	Gly	Lys	Trp	Met	Asp	Asp	Thr	Cys			
			1060					1065					1070				
gac	agt	aaa	cga	ggc	tac	ata	tgc	cag	aca	cga	tcc	gac	cct	tcc		3361	
Asp	Ser	Lys	Arg	Gly	Tyr	Ile	Cys	Gln	Thr	Arg	Ser	Asp	Pro	Ser			
			1075					1080					1085				
ttg	act	aat	cct	cca	gca	acg	att	caa	aca	gat	ggc	ttt	ggt	aaa		3406	

Leu Thr Asn Pro	Pro Ala Thr Ile Gln	Thr Asp Gly Phe Val Lys	
1090	1095	1100	
tat ggc aaa agc	agc tat tca ctc atg	aga caa aaa ttt caa tgg	3451
Tyr Gly Lys Ser	Ser Tyr Ser Leu Met	Arg Gln Lys Phe Gln Trp	
1105	1110	1115	
cat gaa gcg gag	aca tac tgc aag ctt	cac aat tcc ctt ata gcc	3496
His Glu Ala Glu	Thr Tyr Cys Lys Leu	His Asn Ser Leu Ile Ala	
1120	1125	1130	
agc att ctg gat	ccc tac agt aat gca	ttt gcg tgg ctg cag atg	3541
Ser Ile Leu Asp	Pro Tyr Ser Asn Ala	Phe Ala Trp Leu Gln Met	
1135	1140	1145	
gaa aca tct aat	gaa cgt gtg tgg atc	gcc ctg aac agt aac ttg	3586
Glu Thr Ser Asn	Glu Arg Val Trp Ile	Ala Leu Asn Ser Asn Leu	
1150	1155	1160	
act gat aat caa	tac act tgg act gat	aag tgg agg gtg agg tac	3631
Thr Asp Asn Gln	Tyr Thr Trp Thr Asp	Lys Trp Arg Val Arg Tyr	
1165	1170	1175	
act aac tgg gct	gct gat gag ccc aaa	ttg aaa tca gca tgt gtt	3676
Thr Asn Trp Ala	Ala Asp Glu Pro Lys	Leu Lys Ser Ala Cys Val	
1180	1185	1190	
tat ctg gat ctt	gat ggc tac tgg aag	aca gca cat tgc aat gaa	3721
Tyr Leu Asp Leu	Asp Gly Tyr Trp Lys	Thr Ala His Cys Asn Glu	
1195	1200	1205	
agt ttt tac ttt	ctc tgt aaa aga tca	gat gaa atc cct gct act	3766
Ser Phe Tyr Phe	Leu Cys Lys Arg Ser	Asp Glu Ile Pro Ala Thr	
1210	1215	1220	
gaa ccc cca caa	ctg cct ggc aga tgc	ccg gag tca gat cac aca	3811
Glu Pro Pro Gln	Leu Pro Gly Arg Cys	Pro Glu Ser Asp His Thr	
1225	1230	1235	
gca tgg att cct	ttc cat ggt cac tgt	tac tat att gag tcc tca	3856
Ala Trp Ile Pro	Phe His Gly His Cys	Tyr Tyr Ile Glu Ser Ser	
1240	1245	1250	
tat aca aga aac	tgg ggc caa gct tct	ctg gaa tgt ctt cga atg	3901
Tyr Thr Arg Asn	Trp Gly Gln Ala Ser	Leu Glu Cys Leu Arg Met	
1255	1260	1265	
ggt tcc tct ctg	gtt tcc att gaa agt	gct gca gaa tcc agt ttt	3946
Gly Ser Ser Leu	Val Ser Ile Glu Ser	Ala Ala Glu Ser Ser Phe	
1270	1275	1280	
ctg tca tat cgg	gtt gag cca ctt aaa	agt aaa acc aat ttt tgg	3991
Leu Ser Tyr Arg	Val Glu Pro Leu Lys	Ser Lys Thr Asn Phe Trp	
1285	1290	1295	
ata gga ttg ttc	aga aat gtt gaa ggg	acg tgg ctg tgg ata aat	4036
Ile Gly Leu Phe	Arg Asn Val Glu Gly	Thr Trp Leu Trp Ile Asn	
1300	1305	1310	
aac agt ccg gtc	tcc ttt gtc aac tgg	aac aca gga gat ccc tct	4081

Asn Ser Pro Val	Ser Phe Val Asn Trp	Asn Thr Gly Asp Pro Ser	
1315	1320	1325	
ggt gaa cgg aat	gat tgt gta gct tta	cat gcg tct tct ggg ttt	4126
Gly Glu Arg Asn	Asp Cys Val Ala Leu	His Ala Ser Ser Gly Phe	
1330	1335	1340	
tgg agt aat att	cac tgt tct tcc tac	aaa gga tat att tgt aaa	4171
Trp Ser Asn Ile	His Cys Ser Ser Tyr	Lys Gly Tyr Ile Cys Lys	
1345	1350	1355	
aga cca aaa att	att gat gct aaa cct	act cat gaa tta ctt aca	4216
Arg Pro Lys Ile	Ile Asp Ala Lys Pro	Thr His Glu Leu Leu Thr	
1360	1365	1370	
aca aaa gct gac	aca agg aag atg gac	cct tct aaa ccg tct tcc	4261
Thr Lys Ala Asp	Thr Arg Lys Met Asp	Pro Ser Lys Pro Ser	
1375	1380	1385	
aac gtg gcc gga	gta gtc atc att gtg	atc ctc ctg att tta acg	4306
Asn Val Ala Gly	Val Val Ile Ile Val	Ile Leu Leu Ile Leu Thr	
1390	1395	1400	
ggt gct ggc ctt	gcc gcc tat ttc ttt	tat aag aaa aga cgt gtg	4351
Gly Ala Gly Leu	Ala Ala Tyr Phe Phe	Tyr Lys Lys Arg Arg Val	
1405	1410	1415	
cac cta cct caa	gag ggc gcc ttt gaa	aac act ctg tat ttt aac	4396
His Leu Pro Gln	Glu Gly Ala Phe Glu	Asn Thr Leu Tyr Phe Asn	
1420	1425	1430	
agt cag tca agc	cca gga act agt gat	atg aaa gat ctc gtg ggc	4441
Ser Gln Ser Ser	Pro Gly Thr Ser Asp	Met Lys Asp Leu Val Gly	
1435	1440	1445	
aat att gaa cag	aat gaa cac tcg gtc	atc tag tacctcaatg	4484
Asn Ile Glu Gln	Asn Glu His Ser Val	Ile	
1450	1455		
cgattctgag atatttgaat	ttcataaaat tgtaactgaa	attttaaatt tttagttcaa	4544
tgtgattggtt ttcttttaaaa	tgagtactga attgtactgg	tctgtccttt tttcctttgc	4604
ctaattgaag aaataattgc	ttgttttcta gcctggcaag	atattttcat aaaagaggga	4664
taacaatgct gattactacc	ttttaaaata ttttagataa	atgcacagca ccacagcacc	4724
acatctaagc attagtgatg	ggtagctgat gtcagcttca	tgtggatttt aagcactcta	4784
gaaacaatga agcttcttgg	catatttttaa ggagctccca	aaatgtgtta cctattaaat	4844
tgtaactcag caagtagaag	accatttgaa aagtcaggta	caaatttcct caagtggcat	4904
aaaaatgtag tcagttttct	cttttaccag tttttatttc	cactccaatt atttagaact	4964
ttatttgtac atgtgcagaa	gaataaggca gctgagaatc	ttgtttcccc caagagagtt	5024
ttacaggctg agtgttgcaa	atgtgttctt tgtcctgtta	tatgtatatc aggaatacaa	5084
ggatgtgaaa taaaactgta	aatttgcata actggatgta	cttagataat gtgaaataaa	5144

cattaaagac aaggtctatt tttaataaaa aaaaaaaaaa a

5185

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1 5 10 15Val Leu Leu Leu Asp Thr Arg Gln Phe Leu Ile Tyr Asn Glu Asp His
20 25 30Lys Arg Cys Val Asp Ala Val Ser Pro Ser Ala Val Gln Thr Ala Ala
35 40 45Cys Asn Gln Asp Ala Glu Ser Gln Lys Phe Arg Trp Val Ser Glu Ser
50 55 60Gln Ile Met Ser Val Ala Phe Lys Leu Cys Leu Gly Val Pro Ser Lys
65 70 75 80Thr Asp Trp Val Ala Ile Thr Leu Tyr Ala Cys Asp Ser Lys Ser Glu
85 90 95Phe Gln Lys Trp Glu Cys Lys Asn Asp Thr Leu Leu Gly Ile Lys Gly
100 105 110Glu Asp Leu Phe Phe Asn Tyr Gly Asn Arg Gln Glu Lys Asn Ile Met
115 120 125Leu Tyr Lys Gly Ser Gly Leu Trp Ser Arg Trp Lys Ile Tyr Gly Thr
130 135 140Thr Asp Asn Leu Cys Ser Arg Gly Tyr Glu Ala Met Tyr Thr Leu Leu
145 150 155 160Gly Asn Ala Asn Gly Ala Thr Cys Ala Phe Pro Phe Lys Phe Glu Asn
165 170 175Lys Trp Tyr Ala Asp Cys Thr Ser Ala Gly Arg Ser Asp Gly Trp Leu
180 185 190Trp Cys Gly Thr Thr Thr Asp Tyr Asp Thr Asp Lys Leu Phe Gly Tyr
195 200 205Cys Pro Leu Lys Phe Glu Gly Ser Glu Ser Leu Trp Asn Lys Asp Pro
210 215 220

Leu Thr Ser Val Ser Tyr Gln Ile Asn Ser Lys Ser Ala Leu Thr Trp
 225 230 235 240

His Gln Ala Arg Lys Ser Cys Gln Gln Gln Asn Ala Glu Leu Leu Ser
 245 250 255

Ile Thr Glu Ile His Glu Gln Thr Tyr Leu Thr Gly Leu Thr Ser Ser
 260 265 270

Leu Thr Ser Gly Leu Trp Ile Gly Leu Asn Ser Leu Ser Phe Asn Ser
 275 280 285

Gly Trp Gln Trp Ser Asp Arg Ser Pro Phe Arg Tyr Leu Asn Trp Leu
 290 295 300

Pro Gly Ser Pro Ser Ala Glu Pro Gly Lys Ser Cys Val Ser Leu Asn
 305 310 315 320

Pro Gly Lys Asn Ala Lys Trp Glu Asn Leu Glu Cys Val Gln Lys Leu
 325 330 335

Gly Tyr Ile Cys Lys Lys Gly Asn Thr Thr Leu Asn Ser Phe Val Ile
 340 345 350

Pro Ser Glu Ser Asp Val Pro Thr His Cys Pro Ser Gln Trp Trp Pro
 355 360 365

Tyr Ala Gly His Cys Tyr Lys Ile His Arg Asp Glu Lys Lys Ile Gln
 370 375 380

Arg Asp Ala Leu Thr Thr Cys Arg Lys Glu Gly Gly Asp Leu Thr Ser
 385 390 395 400

Ile His Thr Ile Glu Glu Leu Asp Phe Ile Ile Ser Gln Leu Gly Tyr
 405 410 415

Glu Pro Asn Asp Glu Leu Trp Ile Gly Leu Asn Asp Ile Lys Ile Gln
 420 425 430

Met Tyr Phe Glu Trp Ser Asp Gly Thr Pro Val Thr Phe Thr Lys Trp
 435 440 445

Leu Arg Gly Glu Pro Ser His Glu Asn Asn Arg Gln Glu Asp Cys Val
 450 455 460

Val Met Lys Gly Lys Asp Gly Tyr Trp Ala Asp Arg Gly Cys Glu Trp
465 470 475 480

Pro Leu Gly Tyr Ile Cys Lys Met Lys Ser Arg Ser Gln Gly Pro Glu
485 490 495

Ile Val Glu Val Glu Lys Gly Cys Arg Lys Gly Trp Lys Lys His His
500 505 510

Phe Tyr Cys Tyr Met Ile Gly His Thr Leu Ser Thr Phe Ala Glu Ala
515 520 525

Asn Gln Thr Cys Asn Asn Glu Asn Ala Tyr Leu Thr Thr Ile Glu Asp
530 535 540

Arg Tyr Glu Gln Ala Phe Leu Thr Ser Phe Val Gly Leu Arg Pro Glu
545 550 555 560

Lys Tyr Phe Trp Thr Gly Leu Ser Asp Ile Gln Thr Lys Gly Thr Phe
565 570 575

Gln Trp Thr Ile Glu Glu Glu Val Arg Phe Thr His Trp Asn Ser Asp
580 585 590

Met Pro Gly Arg Lys Pro Gly Cys Val Ala Met Arg Thr Gly Ile Ala
595 600 605

Gly Gly Leu Trp Asp Val Leu Lys Cys Asp Glu Lys Ala Lys Phe Val
610 615 620

Cys Lys His Trp Ala Glu Gly Val Thr His Pro Pro Lys Pro Thr Thr
625 630 635 640

Thr Pro Glu Pro Lys Cys Pro Glu Asp Trp Gly Ala Ser Ser Arg Thr
645 650 655

Ser Leu Cys Phe Lys Leu Tyr Ala Lys Gly Lys His Glu Lys Lys Thr
660 665 670

Trp Phe Glu Ser Arg Asp Phe Cys Arg Ala Leu Gly Gly Asp Leu Ala
675 680 685

Ser Ile Asn Asn Lys Glu Glu Gln Gln Thr Ile Trp Arg Leu Ile Thr
690 695 700

Ala Ser Gly Ser Tyr His Lys Leu Phe Trp Leu Gly Leu Thr Tyr Gly
705 710 715 720

Ser Pro Ser Glu Gly Phe Thr Trp Ser Asp Gly Ser Pro Val Ser Tyr
725 730 735

Glu Asn Trp Ala Tyr Gly Glu Pro Asn Asn Tyr Gln Asn Val Glu Tyr
740 745 750

Cys Gly Glu Leu Lys Gly Asp Pro Thr Met Ser Trp Asn Asp Ile Asn
755 760 765

Cys Glu His Leu Asn Asn Trp Ile Cys Gln Ile Gln Lys Gly Gln Thr
770 775 780

Pro Lys Pro Glu Pro Thr Pro Ala Pro Gln Asp Asn Pro Pro Val Thr
785 790 795 800

Glu Asp Gly Trp Val Ile Tyr Lys Asp Tyr Gln Tyr Tyr Phe Ser Lys
805 810 815

Glu Lys Glu Thr Met Asp Asn Ala Arg Ala Phe Cys Lys Arg Asn Phe
820 825 830

Gly Asp Leu Val Ser Ile Gln Ser Glu Ser Glu Lys Lys Phe Leu Trp
835 840 845

Lys Tyr Val Asn Arg Asn Asp Ala Gln Ser Ala Tyr Phe Ile Gly Leu
850 855 860

Leu Ile Ser Leu Asp Lys Lys Phe Ala Trp Met Asp Gly Ser Lys Val
865 870 875 880

Asp Tyr Val Ser Trp Ala Thr Gly Glu Pro Asn Phe Ala Asn Glu Asp
885 890 895

Glu Asn Cys Val Thr Met Tyr Ser Asn Ser Gly Phe Trp Asn Asp Ile
900 905 910

Asn Cys Gly Tyr Pro Asn Ala Phe Ile Cys Gln Arg His Asn Ser Ser
915 920 925

Ile Asn Ala Thr Thr Val Met Pro Thr Met Pro Ser Val Pro Ser Gly
930 935 940

Cys Lys Glu Gly Trp Asn Phe Tyr Ser Asn Lys Cys Phe Lys Ile Phe
 945 950 955 960

Gly Phe Met Glu Glu Glu Arg Lys Asn Trp Gln Glu Ala Arg Lys Ala
 965 970 975

Cys Ile Gly Phe Gly Gly Asn Leu Val Ser Ile Gln Asn Glu Lys Glu
 980 985 990

Gln Ala Phe Leu Thr Tyr His Met Lys Asp Ser Thr Phe Ser Ala Trp
 995 1000 1005

Thr Gly Leu Asn Asp Val Asn Ser Glu His Thr Phe Leu Trp Thr
 1010 1015 1020

Asp Gly Arg Gly Val His Tyr Thr Asn Trp Gly Lys Gly Tyr Pro
 1025 1030 1035

Gly Gly Arg Arg Ser Ser Leu Ser Tyr Glu Asp Ala Asp Cys Val
 1040 1045 1050

Val Ile Ile Gly Gly Ala Ser Asn Glu Ala Gly Lys Trp Met Asp
 1055 1060 1065

Asp Thr Cys Asp Ser Lys Arg Gly Tyr Ile Cys Gln Thr Arg Ser
 1070 1075 1080

Asp Pro Ser Leu Thr Asn Pro Pro Ala Thr Ile Gln Thr Asp Gly
 1085 1090 1095

Phe Val Lys Tyr Gly Lys Ser Ser Tyr Ser Leu Met Arg Gln Lys
 1100 1105 1110

Phe Gln Trp His Glu Ala Glu Thr Tyr Cys Lys Leu His Asn Ser
 1115 1120 1125

Leu Ile Ala Ser Ile Leu Asp Pro Tyr Ser Asn Ala Phe Ala Trp
 1130 1135 1140

Leu Gln Met Glu Thr Ser Asn Glu Arg Val Trp Ile Ala Leu Asn
 1145 1150 1155

Ser Asn Leu Thr Asp Asn Gln Tyr Thr Trp Thr Asp Lys Trp Arg
 1160 1165 1170

Val	Arg	Tyr	Thr	Asn	Trp	Ala	Ala	Asp	Glu	Pro	Lys	Leu	Lys	Ser
1175						1180					1185			
Ala	Cys	Val	Tyr	Leu	Asp	Leu	Asp	Gly	Tyr	Trp	Lys	Thr	Ala	His
1190						1195					1200			
Cys	Asn	Glu	Ser	Phe	Tyr	Phe	Leu	Cys	Lys	Arg	Ser	Asp	Glu	Ile
1205						1210					1215			
Pro	Ala	Thr	Glu	Pro	Pro	Gln	Leu	Pro	Gly	Arg	Cys	Pro	Glu	Ser
1220						1225					1230			
Asp	His	Thr	Ala	Trp	Ile	Pro	Phe	His	Gly	His	Cys	Tyr	Tyr	Ile
1235						1240					1245			
Glu	Ser	Ser	Tyr	Thr	Arg	Asn	Trp	Gly	Gln	Ala	Ser	Leu	Glu	Cys
1250						1255					1260			
Leu	Arg	Met	Gly	Ser	Ser	Leu	Val	Ser	Ile	Glu	Ser	Ala	Ala	Glu
1265						1270					1275			
Ser	Ser	Phe	Leu	Ser	Tyr	Arg	Val	Glu	Pro	Leu	Lys	Ser	Lys	Thr
1280						1285					1290			
Asn	Phe	Trp	Ile	Gly	Leu	Phe	Arg	Asn	Val	Glu	Gly	Thr	Trp	Leu
1295						1300					1305			
Trp	Ile	Asn	Asn	Ser	Pro	Val	Ser	Phe	Val	Asn	Trp	Asn	Thr	Gly
1310						1315					1320			
Asp	Pro	Ser	Gly	Glu	Arg	Asn	Asp	Cys	Val	Ala	Leu	His	Ala	Ser
1325						1330					1335			
Ser	Gly	Phe	Trp	Ser	Asn	Ile	His	Cys	Ser	Ser	Tyr	Lys	Gly	Tyr
1340						1345					1350			
Ile	Cys	Lys	Arg	Pro	Lys	Ile	Ile	Asp	Ala	Lys	Pro	Thr	His	Glu
1355						1360					1365			
Leu	Leu	Thr	Thr	Lys	Ala	Asp	Thr	Arg	Lys	Met	Asp	Pro	Ser	Lys
1370						1375					1380			
Pro	Ser	Ser	Asn	Val	Ala	Gly	Val	Val	Ile	Ile	Val	Ile	Leu	Leu
1385						1390					1395			

Ile Leu Thr Gly Ala Gly Leu Ala Ala Tyr Phe Phe Tyr Lys Lys
 1400 1405 1410

Arg Arg Val His Leu Pro Gln Glu Gly Ala Phe Glu Asn Thr Leu
 1415 1420 1425

Tyr Phe Asn Ser Gln Ser Ser Pro Gly Thr Ser Asp Met Lys Asp
 1430 1435 1440

Leu Val Gly Asn Ile Glu Gln Asn Glu His Ser Val Ile
 1445 1450 1455

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 acaaaaaatg gcatcacctg tcaaaaatgg agttccactt ctccccacag acctagattc 120
 tcacctgcta cacaccctc agagggactg gaggagaact actgcaggaa tccagacaac 180
 gatccgcagg ggccctggtg ctatactact gatccagaaa agagatatga ctactgcgac 240
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 tccaagacca tgtctggact ggaatgccag gcttgggact ctccagagccc acacgctcat 360
 ggatacattc cttccaaatt tccaaacaag aacctgaaga agaattactg tcgtaacccc 420
 gatagggagc tgcggccttg gtgtttcacc accgaccca acaagcgctg ggaactttgt 480
 gacatcccc gctgcacaac acctccacca tcttctggtc ccacctacca gtgtctgaag 540
 ggaacagggtg aaaactatcg cgggaatgtg gctgttaccg tgtccgggca cacctgtcag 600
 cactggagtg cacagacccc tcacacacat gaaaggacac cagaaaactt ccctgcaaa 660
 aatttgatg aaaactactg ccgcaatcct gacggaaaaa gggcccatg gtgccataca 720
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 Met Ala Ser Phe Ser Ala Glu Thr Asn Ser Thr Asp Leu Leu Ser Gln
 1 5 10 15
 cca tgg aat gag ccc cca gta att ctc tcc atg gtc att ctc agc ctt 96
 Pro Trp Asn Glu Pro Pro Val Ile Leu Ser Met Val Ile Leu Ser Leu
 20 25 30
 act ttt tta ctg gga ttg cca ggc aat ggg ctg gtg ctg tgg gtg gct 144
 Thr Phe Leu Leu Gly Leu Pro Gly Asn Gly Leu Val Leu Trp Val Ala

35	40	45	
ggc ctg aag atg cag cgg aca gtg aac aca att tgg ttc ctc cac ctc Gly Leu Lys Met Gln Arg Thr Val Asn Thr Ile Trp Phe Leu His Leu 50 55 60			192
acc ttg gcg gac ctc ctc tgc tgc ctc tcc ttg ccc ttc tcg ctg gct Thr Leu Ala Asp Leu Leu Cys Cys Leu Ser Leu Pro Phe Ser Leu Ala 65 70 75 80			240
cac ttg gct ctc cag gga cag tgg ccc tac ggc agg ttc cta tgc aag His Leu Ala Leu Gln Gly Gln Trp Pro Tyr Gly Arg Phe Leu Cys Lys 85 90 95			288
ctc atc ccc tcc atc att gtc ctc aac atg ttt gcc agt gtc ttc ctg Leu Ile Pro Ser Ile Ile Val Leu Asn Met Phe Ala Ser Val Phe Leu 100 105 110			336
ctt act gcc att agc ctg gat cgc tgt ctt gtg gta ttc aag cca atc Leu Thr Ala Ile Ser Leu Asp Arg Cys Leu Val Val Phe Lys Pro Ile 115 120 125			384
tgg tgt cag aat cat cgc aat gta ggg atg gcc tgc tct atc tgt gga Trp Cys Gln Asn His Arg Asn Val Gly Met Ala Cys Ser Ile Cys Gly 130 135 140			432
tgt atc tgg gtg gtg gct ttt gtg atg tgc att cct gtg ttc gtg tac Cys Ile Trp Val Val Ala Phe Val Met Cys Ile Pro Val Phe Val Tyr 145 150 155 160			480
cgg gaa atc ttc act aca gac aac cat aat aga tgt ggc tac aaa ttt Arg Glu Ile Phe Thr Thr Asp Asn His Asn Arg Cys Gly Tyr Lys Phe 165 170 175			528
ggc ctc tcc agc tca tta gat tat cca gac ttt tat gga gat cca cta Gly Leu Ser Ser Ser Leu Asp Tyr Pro Asp Phe Tyr Gly Asp Pro Leu 180 185 190			576
gaa aac agg tct ctt gaa aac att gtt cag ccg cct gga gaa atg aat Glu Asn Arg Ser Leu Glu Asn Ile Val Gln Pro Pro Gly Glu Met Asn 195 200 205			624
gat agg tta gat cct tcc tct ttc caa aca aat gat cat cct tgg aca Asp Arg Leu Asp Pro Ser Ser Phe Gln Thr Asn Asp His Pro Trp Thr 210 215 220			672
gtc ccc act gtc ttc caa cct caa aca ttt caa aga cct tct gca gat Val Pro Thr Val Phe Gln Pro Gln Thr Phe Gln Arg Pro Ser Ala Asp 225 230 235 240			720
tca ctc cct agg ggt tct gct agg tta aca agt caa aat ctg tat tct Ser Leu Pro Arg Gly Ser Ala Arg Leu Thr Ser Gln Asn Leu Tyr Ser 245 250 255			768
aat gta ttt aaa cct gct gat gtg gtc tca cct aaa atc ccc agt ggg Asn Val Phe Lys Pro Ala Asp Val Val Ser Pro Lys Ile Pro Ser Gly 260 265 270			816
ttt cct att gaa gat cac gaa acc agc cca ctg gat aac tct gat gct Phe Pro Ile Glu Asp His Glu Thr Ser Pro Leu Asp Asn Ser Asp Ala			864

275	280	285	
ttt ctc tct act cat tta aag ctg ttc cct agc gct tct agc aat tcc			912
Phe Leu Ser Thr His Leu Lys Leu Phe Pro Ser Ala Ser Ser Asn Ser			
290	295	300	
ttc tac gag tct gag cta cca caa ggt ttc cag gat tat tac aat tta			960
Phe Tyr Glu Ser Glu Leu Pro Gln Gly Phe Gln Asp Tyr Tyr Asn Leu			
305	310	315	320
ggc caa ttc aca gat gac gat caa gtg cca aca ccc ctc gtg gca ata			1008
Gly Gln Phe Thr Asp Asp Asp Gln Val Pro Thr Pro Leu Val Ala Ile			
	325	330	335
acg atc act agg cta gtg gtg ggt ttc ctg ctg ccc tct gtt atc atg			1056
Thr Ile Thr Arg Leu Val Val Gly Phe Leu Leu Pro Ser Val Ile Met			
	340	345	350
ata gcc tgt tac agc ttc att gtc ttc cga atg caa agg ggc cgc ttc			1104
Ile Ala Cys Tyr Ser Phe Ile Val Phe Arg Met Gln Arg Gly Arg Phe			
	355	360	365
gcc aag tct cag agc aaa acc ttt cga gtg gcc gtg gtg gtg gtg gct			1152
Ala Lys Ser Gln Ser Lys Thr Phe Arg Val Ala Val Val Val Val Ala			
	370	375	380
gtc ttt ctt gtc tgc tgg act cca tac cac att ttt gga gtc ctg tca			1200
Val Phe Leu Val Cys Trp Thr Pro Tyr His Ile Phe Gly Val Leu Ser			
385	390	395	400
ttg ctt act gac cca gaa act ccc ttg ggg aaa act ctg atg tcc tgg			1248
Leu Leu Thr Asp Pro Glu Thr Pro Leu Gly Lys Thr Leu Met Ser Trp			
	405	410	415
gat cat gta tgc att gct cta gca tct gcc aat agt tgc ttt aat ccc			1296
Asp His Val Cys Ile Ala Leu Ala Ser Ala Asn Ser Cys Phe Asn Pro			
	420	425	430
ttc ctt tat gcc ctc ttg ggg aaa gat ttt agg aag aaa gca agg cag			1344
Phe Leu Tyr Ala Leu Leu Gly Lys Asp Phe Arg Lys Lys Ala Arg Gln			
	435	440	445
tcc att cag gga att ctg gag gca gcc ttc agt gag gag ctc aca cgt			1392
Ser Ile Gln Gly Ile Leu Glu Ala Ala Phe Ser Glu Glu Leu Thr Arg			
	450	455	460
tcc acc cac tgt ccc tca aac aat gtc att tca gaa aga aat agt aca			1440
Ser Thr His Cys Pro Ser Asn Asn Val Ile Ser Glu Arg Asn Ser Thr			
465	470	475	480
act gtg tga			1449
Thr Val			

<210> 98 <211> 482 <212> PRT <213> Homo sapiens <400> 98

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20 25 30

Thr Phe Leu Leu Gly Leu Pro Gly Asn Gly Leu Val Leu Trp Val Ala
35 40 45

Gly Leu Lys Met Gln Arg Thr Val Asn Thr Ile Trp Phe Leu His Leu
50 55 60

Thr Leu Ala Asp Leu Leu Cys Cys Leu Ser Leu Pro Phe Ser Leu Ala
65 70 75 80

His Leu Ala Leu Gln Gly Gln Trp Pro Tyr Gly Arg Phe Leu Cys Lys
85 90 95

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Lys Gly Phe Leu Ile Val Ile Ser Thr Ile Leu Leu Leu Thr Phe Ser	
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Leu Phe Phe Phe Tyr Ser Gln Ile Asn Ser Asp Glu Ala Lys Val Ile	
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Arg Gln Tyr Ser Leu Phe Tyr Trp Tyr His Tyr Ile Leu Ser Ile Leu	
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aca ttg tat tct caa ttt ctc ctt aaa gag atg aaa tat aaa cgt aat	3139
Thr Leu Tyr Ser Gln Phe Leu Leu Lys Glu Met Lys Tyr Lys Arg Asn	
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Gln Glu Glu Ile Glu Thr Tyr Tyr Glu Tyr Thr Leu Lys Ile Glu Ala	
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Ile Asn Asn Glu Met Arg Lys Phe Arg His Asp Tyr Val Asn Ile Leu	
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Thr Thr Leu Ser Glu Tyr Ile Arg Glu Asp Asp Met Pro Gly Leu Arg	
245 250 255	

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Ser Lys Leu Asp Tyr Phe Phe Ile Ile Val Ile Ser Thr Leu Ser Leu
35 40 45

Phe Leu Phe Lys Met Phe Asp Ser Ala Ser Leu Ile Ile Leu Thr Ser
50 55 60

Phe Ile Ile Ile Met Tyr Phe Val Lys Ile Lys Trp Tyr Ser Ile Leu
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Leu Ile Met Thr Ser Gln Ile Ile Leu Tyr Cys Ala Asn Tyr Met Tyr
85 90 95

Ile Val Ile Tyr Ala Tyr Ile Thr Lys Ile Ser Asp Ser Ile Phe Val
100 105 110

Ile Phe Pro Ser Phe Phe Val Val Tyr Val Thr Ile Ser Ile Leu Phe
115 120 125

Ser Tyr Ile Ile Asn Arg Val Leu Lys Lys Ile Ser Thr Pro Tyr Leu
130 135 140

Ile Leu Asn Lys Gly Phe Leu Ile Val Ile Ser Thr Ile Leu Leu Leu
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Thr Phe Ser Leu Phe Phe Phe Tyr Ser Gln Ile Asn Ser Asp Glu Ala
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Lys Val Ile Arg Gln Tyr Ser Leu Phe Tyr Trp Tyr His Tyr Ile Leu
180 185 190

Ser Ile Leu Thr Leu Tyr Ser Gln Phe Leu Leu Lys Glu Met Lys Tyr
195 200 205

Lys Arg Asn Gln Glu Glu Ile Glu Thr Tyr Tyr Glu Tyr Thr Leu Lys
210 215 220

Ile Glu Ala Ile Asn Asn Glu Met Arg Lys Phe Arg His Asp Tyr Val
225 230 235 240

Asn Ile Leu Thr Thr Leu Ser Glu Tyr Ile Arg Glu Asp Asp Met Pro
245 250 255

Gly Leu Arg Asp Tyr Phe Asn Lys Asn Ile Val Pro Met Lys Asp Asn
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Leu Gln Met Asn Ala Ile Lys Leu Asn Gly Ile Glu Asn Leu Lys Val
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Arg Glu Ile Lys Gly Leu Ile Thr Ala Lys Ile Leu Arg Ala Gln Glu
290 295 300

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Asn Leu Asn Met Ile Asp Leu Ser Arg Ser Ile Gly Ile Ile Leu Asp
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Ala Phe Ile Glu Ser Glu Asn Ser Val Thr Phe Ile Val Met Asn Lys
355 360 365

Cys Ala Asp Asp Ile Pro Arg Ile His Glu Leu Phe Gln Glu Ser Phe
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Ser Thr Lys Gly Glu Gly Arg Gly Leu Gly Leu Ser Thr Leu Lys Glu
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Gly Phe Phe Tyr Ser Lys Ser
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35 40 45

Asn Met Asn Asp Ile Gly Cys Tyr Phe Leu Asp Ile Gln Leu Ser Thr
50 55 60

Asp Ile Asn Gly Ile Lys Leu Gly Ser Glu Ile Arg Lys His Asp Pro
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Val Gly Asn Ile Ile Phe Val Thr Ser His Ser Glu Leu Thr Tyr Leu
85 90 95

Thr Phe Val Tyr Lys Val Ala Ala Met Asp Phe Ile Phe Lys Asp Asp
100 105 110

Pro Ala Glu Leu Arg Thr Arg Ile Ile Asp Cys Leu Glu Thr Ala His
 115 120 125

Thr Arg Leu Gln Leu Leu Ser Lys Asp Asn Ser Val Glu Thr Ile Glu
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Leu Lys Arg Gly Ser Asn Ser Val Tyr Val Gln Tyr Asp Asp Ile Met
 145 150 155 160

Phe Phe Glu Ser Ser Thr Lys Ser His Arg Leu Ile Ala His Leu Asp
 165 170 175

Asn Arg Gln Ile Glu Phe Tyr Gly Asn Leu Lys Glu Leu Ser Gln Leu
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Asp Asp Arg Phe Phe Arg Cys His Asn Ser Phe Val Val Asn Arg His
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Cys	Val	Asp	Glu	Ile	Ala	Arg	Gly	Cys	Glu	Thr	Lys	Pro	Ile	Thr	Gly	
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Leu	Ala	Gly	Lys	Thr	Arg	Phe	Pro	Glu	Leu	Gly	Ala	Leu	Ile	Asp	His	
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Phe	Trp	Arg	Pro	Trp	Thr	Glu	Asn	Ile	Ile	Gln	Phe	Trp	Ala	Gly	Asn	
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Tyr	Gln	Lys	Met	Pro	Thr	Arg	His	Glu	Leu	Asp	Arg	Asn	Lys	Lys	Tyr	
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Val	Ala	Phe	Cys	Leu	Tyr	Lys	Tyr	Phe	Pro	Phe	Gly	Gly	Leu	Gln	Arg	
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Asp	Phe	Met	Arg	Ile	Ala	Ser	Thr	Val	Ala	Ala	Arg	Gly	His	His	Val	
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Arg	Val	Tyr	Thr	Gln	Ser	Trp	Glu	Gly	Asp	Cys	Pro	Lys	Ala	Phe	Glu	
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Pro	Leu	Arg	Met	Ala	Trp	Ala	Glu	Asn	Ala	Arg	His	Tyr	Ala	Asp	Thr		
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Lys Asp Ala Phe Ala Glu Val Lys Lys Leu Asn Gly Glu Val Phe Arg	
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795 800 805	
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Ile Gly Phe Gly Glu Lys Gly Leu Asn Pro Leu Thr Arg Ala Ser Phe	
810 815 820 825	
att att acc gaa gat ctc act ccc aca att agc ctt gaa gat tat tgt	2969
Ile Ile Thr Glu Asp Leu Thr Pro Thr Ile Ser Leu Glu Asp Tyr Cys	
830 835 840	
gcc gat tgg gca gtc aac ccg cct gat ata cgt gtt aag cgt atg ctg	3017
Ala Asp Trp Ala Val Asn Pro Pro Asp Ile Arg Val Lys Arg Met Leu	
845 850 855	
atc gca cgt gta gca act atg gtg cgt aaa atg cat act gca ggg ata	3065
Ile Ala Arg Val Ala Thr Met Val Arg Lys Met His Thr Ala Gly Ile	
860 865 870	
aat cac cgc gac tgt tac att tgc cac ttt ttg ctt cat ttg cca ttt	3113
Asn His Arg Asp Cys Tyr Ile Cys His Phe Leu Leu His Leu Pro Phe	
875 880 885	
act ggc cgg gaa gat gaa tta aaa att tca gtt atc gat ctg cat cgg	3161
Thr Gly Arg Glu Asp Glu Leu Lys Ile Ser Val Ile Asp Leu His Arg	
890 895 900 905	
gca cag ata cgt gca aaa gta ccg cgc cgc tgg cgc gat aaa gac ctg	3209
Ala Gln Ile Arg Ala Lys Val Pro Arg Arg Trp Arg Asp Lys Asp Leu	
910 915 920	
att ggt tta tat ttc tca tca atg aat att ggc ctg acg caa aga gat	3257
Ile Gly Leu Tyr Phe Ser Ser Met Asn Ile Gly Leu Thr Gln Arg Asp	
925 930 935	
atc tgg cga ttt atg aag gtt tat ttt ggg atg cct tta cgc aaa ata	3305

Ile Trp Arg Phe Met Lys Val Tyr Phe Gly Met Pro Leu Arg Lys Ile	
940 945 950	
ttg tct ctt gaa cag aat tta ttg aac atg gca agc gtt aag gcc gag	3353
Leu Ser Leu Glu Gln Asn Leu Leu Asn Met Ala Ser Val Lys Ala Glu	
955 960 965	
cgt att aaa gag cga aca caa cgc aaa gga tta taaaaatatt tattagtatg	3406
Arg Ile Lys Glu Arg Thr Gln Arg Lys Gly Leu	
970 975 980	
tactggaact aacttttatt atg act att tat ttt ata aat tgg gtt gca gat	3458
Met Thr Ile Tyr Phe Ile Asn Trp Val Ala Asp	
985 990	
tat gaa tta aaa atg att cag tac ctg aaa aaa aag tac aag ata aaa	3506
Tyr Glu Leu Lys Met Ile Gln Tyr Leu Lys Lys Lys Tyr Lys Ile Lys	
995 1000 1005	
aat ata aca aca cca aaa aaa tat aac tgg att aat aaa aaa ata	3551
Asn Ile Thr Thr Pro Lys Lys Tyr Asn Trp Ile Asn Lys Lys Ile	
1010 1015 1020	
tca aaa ata ggg atg gat aat gca tgg ctg ggg cga tta ttc atc	3596
Ser Lys Ile Gly Met Asp Asn Ala Trp Leu Gly Arg Leu Phe Ile	
1025 1030 1035	
aag cat tac ctc aat gat att aaa aaa gat gac ata att atc att	3641
Lys His Tyr Leu Asn Asp Ile Lys Lys Asp Asp Ile Ile Ile Ile	
1040 1045 1050	
aat gac agt gtt gtt aat aaa ggt atc aat aaa caa ata tta aaa	3686
Asn Asp Ser Val Val Asn Lys Gly Ile Asn Lys Gln Ile Leu Lys	
1055 1060 1065	
aat att aac tgt cat aaa gtt ttg ctt cta aga aat act gtt ggc	3731
Asn Ile Asn Cys His Lys Val Leu Leu Leu Arg Asn Thr Val Gly	
1070 1075 1080	
gaa gat ttt att ctt gat aac gcg aat tat ttc gat att ata tat	3776
Glu Asp Phe Ile Leu Asp Asn Ala Asn Tyr Phe Asp Ile Ile Tyr	
1085 1090 1095	
gat ttt gag cat aga ttt ata ggg aat gaa aag atc aag gca ata	3821
Asp Phe Glu His Arg Phe Ile Gly Asn Glu Lys Ile Lys Ala Ile	
1100 1105 1110	
gaa caa ttt ttt cct ata gga atg gat gaa att aga aat tat agt	3866
Glu Gln Phe Phe Pro Ile Gly Met Asp Glu Ile Arg Asn Tyr Ser	
1115 1120 1125	
tta tct gac aaa aat aac agc cag cca ata tgt ttt ttc ctt ggt	3911
Leu Ser Asp Lys Asn Asn Ser Gln Pro Ile Cys Phe Phe Leu Gly	
1130 1135 1140	
cgt gat aaa ggg cgt ctt caa ata att aat gag tta gcc gag aga	3956
Arg Asp Lys Gly Arg Leu Gln Ile Ile Asn Glu Leu Ala Glu Arg	
1145 1150 1155	
tta aca aca cta gga tgt aag cta gat ttt aat gtt gtc aaa gat	4001

Leu Thr Thr	Leu Gly Cys Lys	Leu Asp Phe Asn Val	Val Lys Asp	
1160		1165	1170	
aag aca tca	tct acg act tca	aag tat ttg att gaa	aaa caa ata	4046
Lys Thr Ser	Ser Thr Thr Ser	Lys Tyr Leu Ile Glu	Lys Gln Ile	
1175		1180	1185	
tct tat gaa	gag aat att aga	aga aca tta aat gct	aat ata att	4091
Ser Tyr Glu	Glu Asn Ile Arg	Arg Thr Leu Asn Ala	Asn Ile Ile	
1190		1195	1200	
gtt gat ata	acc aaa gaa aac	caa tct ggc tgg act	ctt cgt ata	4136
Val Asp Ile	Thr Lys Glu Asn	Gln Ser Gly Trp Thr	Leu Arg Ile	
1205		1210	1215	
ctt gag gca	cta ttt ttc aat	aaa aaa tta att act	aat aat ata	4181
Leu Glu Ala	Leu Phe Phe Asn	Lys Lys Leu Ile Thr	Asn Asn Ile	
1220		1225	1230	
aat gta ttt	ggg tca gaa atc	tat agt gaa tct cgc	ttt ttt ata	4226
Asn Val Phe	Gly Ser Glu Ile	Tyr Ser Glu Ser Arg	Phe Phe Ile	
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Ile Gly His	Asp Asp Trp Asp	Lys Leu Glu Tyr Phe	Ile Asn Ser	
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tct gtt aaa	cca atg gat tat	gat agt tta tat aaa	ttc agt cca	4316
Ser Val Lys	Pro Met Asp Tyr	Asp Ser Leu Tyr Lys	Phe Ser Pro	
1265		1270	1275	
gat aaa atg	atg tca acg att	gtt tct gat ttt ata	gac aaa taa	4361
Asp Lys Met	Met Ser Thr Ile	Val Ser Asp Phe Ile	Asp Lys	
1280		1285	1290	
aaccgttaaaa	aca gtg agt ttt act	caa tta atg aga gtt	tct atg aaa	4410
	Val Ser Phe Thr	Gln Leu Met Arg Val	Ser Met Lys	
	1295	1300		
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Ile Ala Phe	Ile Gly Glu Ala	Val Ser Gly Phe Gly	Gly Met Glu	
1305		1310	1315	
act gtc atc	cgt gat gtt att	act acc ttc agg	caa caa cat atc	4500
Thr Val Ile	Arg Asp Val Ile	Thr Thr Phe Arg	Gln Gln His Ile	
1320		1325	1330	
caa agt gaa	atg ttt ttc ttt	tgt cgt aat gac	aaa atg gat aag	4545
Gln Ser Glu	Met Phe Phe Phe	Cys Arg Asn Asp	Lys Met Asp Lys	
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gga tgg ctg	gaa ggt att aaa	tac tca tgt tca ttt	tcc aat att	4590
Gly Trp Leu	Glu Gly Ile Lys	Tyr Ser Cys Ser Phe	Ser Asn Ile	
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cgt tta ggt	ttt ttg cgt cgg	gcg aaa cat att cat	gct cta agt	4635
Arg Leu Gly	Phe Leu Arg Arg	Ala Lys His Ile His	Ala Leu Ser	
1365		1370	1375	
aaa tgg ctt	cag gag tac caa	cca gat atc gtt att	tgt att gat	4680

Lys	Trp	Leu	Gln	Glu	Tyr	Gln	Pro	Asp	Ile	Val	Ile	Cys	Ile	Asp	
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Val	Ile	Ser	Cys	Leu	Phe	Ala	Ala	Lys	Ala	Arg	Lys	Lys	Ser	Gly	
1395						1400					1405				
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Ile	Asp	Met	Pro	Val	Phe	Ser	Trp	Pro	His	Phe	Ser	Leu	Asp	His	
1410						1415					1420				
aaa	aaa	cat	gct	gaa	tat	atc	acc	tgt	gcc	gac	tat	cat	tta	gca	4815
Lys	Lys	His	Ala	Glu	Tyr	Ile	Thr	Cys	Ala	Asp	Tyr	His	Leu	Ala	
1425						1430					1435				
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Ile	Ser	Ser	Gly	Ile	Lys	Gln	Gln	Met	Ile	Asn	Arg	Gly	Val	Ala	
1440						1445					1450				
gaa	tcg	acg	ata	aat	gtt	att	ttt	aat	ccc	gtc	gaa	act	aaa	gac	4905
Glu	Ser	Thr	Ile	Asn	Val	Ile	Phe	Asn	Pro	Val	Glu	Thr	Lys	Asp	
1455						1460					1465				
tca	gtc	att	ccc	gcg	ccc	gag	gaa	ggg	gaa	acg	gca	acg	ttt	att	4950
Ser	Val	Ile	Pro	Ala	Pro	Glu	Glu	Gly	Glu	Thr	Ala	Thr	Phe	Ile	
1470						1475					1480				
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Tyr	Val	Gly	Arg	Met	Lys	Phe	Glu	Gly	Gln	Lys	Arg	Val	Lys	Asp	
1485						1490					1495				
ctg	ctt	gat	ggc	tta	tca	caa	gcg	aaa	ggg	aac	tgg	aaa	ctc	cat	5040
Leu	Leu	Asp	Gly	Leu	Ser	Gln	Ala	Lys	Gly	Asn	Trp	Lys	Leu	His	
1500						1505					1510				
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Val	Leu	Gly	Asp	Gly	Ser	Asp	Phe	Glu	Lys	Cys	Gln	Ala	Tyr	Gly	
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Arg	Glu	Leu	Asn	Ile	Asp	Asp	Arg	Ile	Val	Trp	Tyr	Gly	Trp	Gln	
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Gln	Tyr	Pro	Trp	Glu	Leu	Val	Gln	Gln	Asp	Ile	Glu	Lys	Val	Ser	
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1560						1565					1570				
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Leu	Glu	Ala	Leu	Ser	Trp	Gly	Ile	Pro	Cys	Ile	Ser	Ala	Asp	Cys	
1575						1580					1585				
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Val	Ser	Gly	Pro	Ala	Asp	Ile	Ile	Gln	Pro	Asp	Val	Asn	Gly	His	
1590						1595					1600				
ctg	tat	caa	ccg	gga	gat	att	gct	ggg	ttt	gta	act	ctt	cta	aat	5355

Leu Tyr	Gln Pro Gly Asp	Ile	Ala Gly Phe Val Thr	Leu Leu Asn	
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aaa tat	ata gca ggt gaa att	cat atc gaa cat gaa	aaa att cct	5400	
Lys Tyr	Ile Ala Gly Glu Ile	His Ile Glu His Glu	Lys Ile Pro		
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Ala Ser	Ile Asp Glu Phe Tyr	Gln Ser Lys Tyr Tyr	Asp Arg Leu		
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His Lys	Val Ile Ile Ser Ala	Ile Ser Arg Arg Lys	Met Gln Gln		
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Val Phe	Phe Gln Glu Thr Glu	Phe Leu Asn Ser Val	Ile Asp Tyr		
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Asp His	Lys Val Glu Thr Glu	Asn Leu Cys Leu Asp	Ile Ala Tyr		
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Gly Thr	Asp Lys Asn Phe Leu	Phe Gly Cys Gly Ile	Ser Ile Ala		
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Ser Ile	Leu Lys Tyr Asn Glu	Gly Ser Arg Leu Cys	Phe His Ile		
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Phe Thr	Asp Tyr Phe Gly Asp	Asp Asp Arg Lys Tyr	Phe Asp Ala		
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ctg gcg	ttg cag tat aaa acc	aga att aaa ata tat	ctg att aat	5762	
Leu Ala	Leu Gln Tyr Lys Thr	Arg Ile Lys Ile Tyr	Leu Ile Asn		
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Gly Asp	Arg Leu Arg Ser Leu	Pro Ser Thr Lys Asn	Trp Thr His		
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Ala Ile	Tyr Phe Arg Phe Val	Ile Ala Asp Tyr Phe	Ile Asn Lys		
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Ala Pro	Lys Val Leu Tyr Leu	Asp Ala Asp Ile Ile	Cys Gln Gly		
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Thr Ile	Glu Pro Leu Ile Asn	Phe Ser Phe Pro Asp	Asp Lys Val		
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Ala Met	Val Val Thr Glu Gly	Gln Ala Asp Trp Trp	Glu Lys Arg		
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Ala	His	Ser	Leu	Gly	Val	Ala	Gly	Ile	Ala	Lys	Gly	Tyr	Phe	Asn			
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Val	Ser	Ala	Arg	Ala	Ile	Ala	Met	Leu	Asn	Glu	Pro	Glu	Ile	Ile			
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Lys	Lys	Ile	Thr	His	Pro	Asp	Gln	Asp	Val	Leu	Asn	Met	Leu	Leu			
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Ala	Asp	Lys	Leu	Ile	Phe	Ala	Asp	Ile	Lys	Tyr	Asn	Thr	Gln	Phe			
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Ser	Leu	Asn	Tyr	Gln	Leu	Lys	Glu	Ser	Phe	Ile	Asn	Pro	Val	Thr			
1905						1910					1915						
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Asn	Asp	Thr	Ile	Phe	Ile	His	Tyr	Ile	Gly	Pro	Thr	Lys	Pro	Trp			
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His	Asp	Trp	Ala	Trp	Asp	Tyr	Pro	Val	Ser	Gln	Ala	Phe	Met	Glu			
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Ala	Lys	Asn	Ala	Ser	Pro	Trp	Lys	Asn	Thr	Ala	Leu	Leu	Lys	Pro			
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Asn	Asn	Ser	Asn	Gln	Leu	Arg	Tyr	Ser	Ala	Lys	His	Met	Leu	Lys			
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Lys	His	Arg	Tyr	Leu	Lys	Gly	Phe	Ser	Asn	Tyr	Leu	Phe	Tyr	Phe			
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Ile	Glu	Lys	Ile	Lys	His												
1995																	
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	Val	Asp	Ser	Phe	Pro	Ala	Ile	Glu	Ile	Asp	Lys	Val	Lys				
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Ala	Trp	Asp	Phe	Arg	Leu	Ala	Asn	Ile	Asn	Thr	Ser	Glu	Cys	Leu			
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Asn	Val	Ala	Tyr	Gly	Val	Asp	Ala	Asn	Tyr	Leu	Asp	Gly	Val	Gly			
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Phe Asn Ser Gly Val Val Tyr Leu Asp Leu Lys Lys Trp Ala Asp	
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Asp Thr Ile Pro Ile Leu Ser Glu Asn Pro Glu Ile Asn Ala Leu Tyr
 35 40 45

Gly Ile Ser Asn Lys Gly Ala Gly Thr Phe Asp Lys Ile Lys Asn Val
 50 55 60

Leu Ser Leu Ile Lys Thr Leu Arg Ala Asn Asn Tyr Asp Leu Val Ile
 65 70 75 80

Asn Leu Thr Asp Gln Trp Met Val Ala Leu Leu Val Arg Cys Leu Pro
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Ala Arg Met Lys Ile Ser Gln Leu Tyr Gly His Arg Gln His Gly Ile
 100 105 110

Trp Lys Lys Ser Phe Thr His Leu Ala Pro Ile His Gly Thr His Ile
 115 120 125

Val Glu Arg Asn Leu Ser Val Leu Glu Pro Leu Gly Ile Thr Asp Phe
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 145 150 155 160

Arg Arg Glu Leu Asp Ala Leu Gly Val Lys Asp His Tyr Val Val Ile
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Gln Pro Thr Ala Arg Gln Ile Phe Lys Cys Trp Asp Asn Asp Lys Phe
180 185 190

Ser Lys Val Ile Asp Ala Leu Gln Gln Arg Gly Tyr Gln Val Val Leu
195 200 205

Thr Cys Gly Pro Ser Ala Asp Asp Leu Ala Cys Val Asp Glu Ile Ala
210 215 220

Arg Gly Cys Glu Thr Lys Pro Ile Thr Gly Leu Ala Gly Lys Thr Arg
225 230 235 240

Phe Pro Glu Leu Gly Ala Leu Ile Asp His Ala Val Leu Phe Ile Gly
245 250 255

Val Asp Ser Ala Pro Gly His Ile Ala Ala Ala Val Lys Thr Pro Val
260 265 270

Ile Ser Leu Phe Gly Ala Thr Asp His Val Phe Trp Arg Pro Trp Thr
275 280 285

Glu Asn Ile Ile Gln Phe Trp Ala Gly Asn Tyr Gln Lys Met Pro Thr
290 295 300

Arg His Glu Leu Asp Arg Asn Lys Lys Tyr Leu Ser Val Ile Pro Ala
305 310 315 320

Glu Asp Val Ile Ala Ala Thr Glu Lys Leu Leu Pro Glu Asp Ala Pro
325 330 335

Ser Ala Asp Arg Asn Ala Gln Leu
340

<210> 107 <211> 371 <212> PRT <213> Escherichia coli <400> 107

Ile Val Ala Phe Cys Leu Tyr Lys Tyr Phe Pro Phe Gly Gly Leu Gln
1 5 10 15

Arg Asp Phe Met Arg Ile Ala Ser Thr Val Ala Ala Arg Gly His His
20 25 30

Val Arg Val Tyr Thr Gln Ser Trp Glu Gly Asp Cys Pro Lys Ala Phe
35 40 45

Glu Leu Ile Gln Val Pro Val Lys Ser His Thr Asn His Gly Arg Asn
 50 55 60

Ala Glu Tyr Tyr Ala Trp Val Gln Asn His Leu Lys Glu His Pro Ala
 65 70 75 80

Asp Arg Val Val Gly Phe Asn Lys Met Pro Gly Leu Asp Val Tyr Phe
 85 90 95

Ala Ala Asp Val Cys Tyr Ala Glu Lys Val Ala Gln Glu Lys Gly Phe
 100 105 110

Leu Tyr Arg Leu Thr Ser Arg Tyr Arg His Tyr Ala Ala Phe Glu Arg
 115 120 125

Ala Thr Phe Glu Gln Gly Lys Ser Thr Lys Leu Met Met Leu Thr Asp
 130 135 140

Lys Gln Ile Ala Asp Phe Gln Lys His Tyr Gln Thr Glu Pro Glu Arg
 145 150 155 160

Phe Gln Ile Leu Pro Pro Gly Ile Tyr Pro Asp Arg Lys Tyr Ser Glu
 165 170 175

Gln Ile Pro Asn Ser Arg Glu Ile Tyr Arg Gln Lys Asn Gly Ile Lys
 180 185 190

Glu Gln Gln Asn Leu Leu Leu Gln Val Gly Ser Asp Phe Gly Arg Lys
 195 200 205

Gly Val Asp Arg Ser Ile Glu Ala Leu Ala Ser Leu Pro Glu Ser Leu
 210 215 220

Arg His Asn Thr Leu Leu Phe Val Val Gly Gln Asp Lys Pro Arg Lys
 225 230 235 240

Phe Glu Ala Leu Ala Glu Lys Leu Gly Val Arg Ser Asn Val His Phe
 245 250 255

Phe Ser Gly Arg Asn Asp Val Ser Glu Leu Met Ala Ala Ala Asp Leu
 260 265 270

Leu Leu His Pro Ala Tyr Gln Glu Ala Ala Gly Ile Val Leu Leu Glu
 275 280 285

Ala Ile Thr Ala Gly Leu Pro Val Leu Thr Thr Ala Val Cys Gly Tyr
 290 295 300

Ala His Tyr Ile Ala Asp Ala Asn Cys Gly Thr Val Ile Ala Glu Pro
 305 310 315 320

Phe Ser Gln Glu Gln Leu Asn Glu Val Leu Arg Lys Ala Leu Thr Gln
 325 330 335

Ser Pro Leu Arg Met Ala Trp Ala Glu Asn Ala Arg His Tyr Ala Asp
 340 345 350

Thr Gln Asp Leu Tyr Ser Leu Pro Glu Lys Ala Ala Asp Ile Ile Thr
 355 360 365

Gly Gly Leu
 370

<210> 108 <211> 265 <212> PRT <213> Escherichia coli <400> 108

Met Val Glu Leu Lys Glu Pro Leu Ala Thr Leu Trp Arg Gly Lys Asp
 1 5 10 15

Ala Phe Ala Glu Val Lys Lys Leu Asn Gly Glu Val Phe Arg Glu Leu
 20 25 30

Glu Thr Arg Arg Thr Leu Arg Phe Glu Leu Ser Gly Lys Ser Tyr Phe
 35 40 45

Leu Lys Trp His Lys Gly Thr Thr Leu Lys Glu Ile Ile Lys Asn Leu
 50 55 60

Leu Ser Leu Arg Met Pro Val Leu Gly Ala Asp Arg Glu Trp His Ala
 65 70 75 80

Ile His Arg Leu Ser Asp Val Gly Val Asp Thr Met Lys Gly Ile Gly
 85 90 95

Phe Gly Glu Lys Gly Leu Asn Pro Leu Thr Arg Ala Ser Phe Ile Ile
 100 105 110

Thr Glu Asp Leu Thr Pro Thr Ile Ser Leu Glu Asp Tyr Cys Ala Asp
 115 120 125

Trp Ala Val Asn Pro Pro Asp Ile Arg Val Lys Arg Met Leu Ile Ala
 130 135 140

Arg Val Ala Thr Met Val Arg Lys Met His Thr Ala Gly Ile Asn His
145 150 155 160

Arg Asp Cys Tyr Ile Cys His Phe Leu Leu His Leu Pro Phe Thr Gly
165 170 175

Arg Glu Asp Glu Leu Lys Ile Ser Val Ile Asp Leu His Arg Ala Gln
180 185 190

Ile Arg Ala Lys Val Pro Arg Arg Trp Arg Asp Lys Asp Leu Ile Gly
195 200 205

Leu Tyr Phe Ser Ser Met Asn Ile Gly Leu Thr Gln Arg Asp Ile Trp
210 215 220

Arg Phe Met Lys Val Tyr Phe Gly Met Pro Leu Arg Lys Ile Leu Ser
225 230 235 240

Leu Glu Gln Asn Leu Leu Asn Met Ala Ser Val Lys Ala Glu Arg Ile
245 250 255

Lys Glu Arg Thr Gln Arg Lys Gly Leu
260 265

<210> 109 <211> 311 <212> PRT <213> Escherichia coli <400> 109

Met Thr Ile Tyr Phe Ile Asn Trp Val Ala Asp Tyr Glu Leu Lys Met
1 5 10 15

Ile Gln Tyr Leu Lys Lys Lys Tyr Lys Ile Lys Asn Ile Thr Thr Pro
20 25 30

Lys Lys Tyr Asn Trp Ile Asn Lys Lys Ile Ser Lys Ile Gly Met Asp
35 40 45

Asn Ala Trp Leu Gly Arg Leu Phe Ile Lys His Tyr Leu Asn Asp Ile
50 55 60

Lys Lys Asp Asp Ile Ile Ile Ile Asn Asp Ser Val Val Asn Lys Gly
65 70 75 80

Ile Asn Lys Gln Ile Leu Lys Asn Ile Asn Cys His Lys Val Leu Leu
85 90 95

Leu Arg Asn Thr Val Gly Glu Asp Phe Ile Leu Asp Asn Ala Asn Tyr
 100 105 110

Phe Asp Ile Ile Tyr Asp Phe Glu His Arg Phe Ile Gly Asn Glu Lys
 115 120 125

Ile Lys Ala Ile Glu Gln Phe Phe Pro Ile Gly Met Asp Glu Ile Arg
 130 135 140

Asn Tyr Ser Leu Ser Asp Lys Asn Asn Ser Gln Pro Ile Cys Phe Phe
 145 150 155 160

Leu Gly Arg Asp Lys Gly Arg Leu Gln Ile Ile Asn Glu Leu Ala Glu
 165 170 175

Arg Leu Thr Thr Leu Gly Cys Lys Leu Asp Phe Asn Val Val Lys Asp
 180 185 190

Lys Thr Ser Ser Thr Thr Ser Lys Tyr Leu Ile Glu Lys Gln Ile Ser
 195 200 205

Tyr Glu Glu Asn Ile Arg Arg Thr Leu Asn Ala Asn Ile Ile Val Asp
 210 215 220

Ile Thr Lys Glu Asn Gln Ser Gly Trp Thr Leu Arg Ile Leu Glu Ala
 225 230 235 240

Leu Phe Phe Asn Lys Lys Leu Ile Thr Asn Asn Ile Asn Val Phe Gly
 245 250 255

Ser Glu Ile Tyr Ser Glu Ser Arg Phe Phe Ile Ile Gly His Asp Asp
 260 265 270

Trp Asp Lys Leu Glu Tyr Phe Ile Asn Ser Ser Val Lys Pro Met Asp
 275 280 285

Tyr Asp Ser Leu Tyr Lys Phe Ser Pro Asp Lys Met Met Ser Thr Ile
 290 295 300

Val Ser Asp Phe Ile Asp Lys
 305 310

<210> 110 <211> 369 <212> PRT <213> Escherichia coli <400> 110

Val Ser Phe Thr Gln Leu Met Arg Val Ser Met Lys Ile Ala Phe Ile
 1 5 10 15

00751703-030102

00751703-030102

00751703-030102

09751708-020102

09751708-020102

Gly Glu Ala Val Ser Gly Phe Gly Gly Met Glu Thr Val Ile Arg Asp
 20 25 30

Val Ile Thr Thr Phe Arg Gln Gln His Ile Gln Ser Glu Met Phe Phe
 35 40 45

Phe Cys Arg Asn Asp Lys Met Asp Lys Gly Trp Leu Glu Gly Ile Lys
 50 55 60

Tyr Ser Cys Ser Phe Ser Asn Ile Arg Leu Gly Phe Leu Arg Arg Ala
 65 70 75 80

Lys His Ile His Ala Leu Ser Lys Trp Leu Gln Glu Tyr Gln Pro Asp
 85 90 95

Ile Val Ile Cys Ile Asp Val Ile Ser Cys Leu Phe Ala Ala Lys Ala
 100 105 110

Arg Lys Lys Ser Gly Ile Asp Met Pro Val Phe Ser Trp Pro His Phe
 115 120 125

Ser Leu Asp His Lys Lys His Ala Glu Tyr Ile Thr Cys Ala Asp Tyr
 130 135 140

His Leu Ala Ile Ser Ser Gly Ile Lys Gln Gln Met Ile Asn Arg Gly
 145 150 155 160

Val Ala Glu Ser Thr Ile Asn Val Ile Phe Asn Pro Val Glu Thr Lys
 165 170 175

Asp Ser Val Ile Pro Ala Pro Glu Glu Gly Glu Thr Ala Thr Phe Ile
 180 185 190

Tyr Val Gly Arg Met Lys Phe Glu Gly Gln Lys Arg Val Lys Asp Leu
 195 200 205

Leu Asp Gly Leu Ser Gln Ala Lys Gly Asn Trp Lys Leu His Val Leu
 210 215 220

Gly Asp Gly Ser Asp Phe Glu Lys Cys Gln Ala Tyr Gly Arg Glu Leu
 225 230 235 240

Asn Ile Asp Asp Arg Ile Val Trp Tyr Gly Trp Gln Gln Tyr Pro Trp
 245 250 255

Glu Leu Val Gln Gln Asp Ile Glu Lys Val Ser Ala Leu Leu Leu Thr
 260 265 270

Ser Ser Phe Glu Gly Phe Pro Met Thr Leu Leu Glu Ala Leu Ser Trp
 275 280 285

Gly Ile Pro Cys Ile Ser Ala Asp Cys Val Ser Gly Pro Ala Asp Ile
 290 295 300

Ile Gln Pro Asp Val Asn Gly His Leu Tyr Gln Pro Gly Asp Ile Ala
 305 310 315 320

Gly Phe Val Thr Leu Leu Asn Lys Tyr Ile Ala Gly Glu Ile His Ile
 325 330 335

Glu His Glu Lys Ile Pro Ala Ser Ile Asp Glu Phe Tyr Gln Ser Lys
 340 345 350

Tyr Tyr Asp Arg Leu His Lys Val Ile Ile Ser Ala Ile Ser Arg Arg
 355 360 365

Lys

<210> 111 <211> 339 <212> PRT <213> Escherichia coli <400> 111

Met Gln Gln Val Phe Phe Gln Glu Thr Glu Phe Leu Asn Ser Val Ile
 1 5 10 15

Asp Tyr Asp His Lys Val Glu Thr Glu Asn Leu Cys Leu Asp Ile Ala
 20 25 30

Tyr Gly Thr Asp Lys Asn Phe Leu Phe Gly Cys Gly Ile Ser Ile Ala
 35 40 45

Ser Ile Leu Lys Tyr Asn Glu Gly Ser Arg Leu Cys Phe His Ile Phe
 50 55 60

Thr Asp Tyr Phe Gly Asp Asp Arg Lys Tyr Phe Asp Ala Leu Ala
 65 70 75 80

Leu Gln Tyr Lys Thr Arg Ile Lys Ile Tyr Leu Ile Asn Gly Asp Arg
 85 90 95

Leu Arg Ser Leu Pro Ser Thr Lys Asn Trp Thr His Ala Ile Tyr Phe
 100 105 110

Arg Phe Val Ile Ala Asp Tyr Phe Ile Asn Lys Ala Pro Lys Val Leu
 115 120 125

Tyr Leu Asp Ala Asp Ile Ile Cys Gln Gly Thr Ile Glu Pro Leu Ile
 130 135 140

Asn Phe Ser Phe Pro Asp Asp Lys Val Ala Met Val Val Thr Glu Gly
 145 150 155 160

Gln Ala Asp Trp Trp Glu Lys Arg Ala His Ser Leu Gly Val Ala Gly
 165 170 175

Ile Ala Lys Gly Tyr Phe Asn Ser Gly Phe Leu Leu Ile Asn Thr Ala
 180 185 190

Gln Trp Ala Ala Gln Gln Val Ser Ala Arg Ala Ile Ala Met Leu Asn
 195 200 205

Glu Pro Glu Ile Ile Lys Lys Ile Thr His Pro Asp Gln Asp Val Leu
 210 215 220

Asn Met Leu Leu Ala Asp Lys Leu Ile Phe Ala Asp Ile Lys Tyr Asn
 225 230 235 240

Thr Gln Phe Ser Leu Asn Tyr Gln Leu Lys Glu Ser Phe Ile Asn Pro
 245 250 255

Val Thr Asn Asp Thr Ile Phe Ile His Tyr Ile Gly Pro Thr Lys Pro
 260 265 270

Trp His Asp Trp Ala Trp Asp Tyr Pro Val Ser Gln Ala Phe Met Glu
 275 280 285

Ala Lys Asn Ala Ser Pro Trp Lys Asn Thr Ala Leu Leu Lys Pro Asn
 290 295 300

Asn Ser Asn Gln Leu Arg Tyr Ser Ala Lys His Met Leu Lys Lys His
 305 310 315 320

Arg Tyr Leu Lys Gly Phe Ser Asn Tyr Leu Phe Tyr Phe Ile Glu Lys
 325 330 335

Ile Lys His

<210> 112 <211> 314 <212> PRT <213> Escherichia coli <400> 112

Val Asp Ser Phe Pro Ala Ile Glu Ile Asp Lys Val Lys Ala Trp Asp
1 5 10 15

Phe Arg Leu Ala Asn Ile Asn Thr Ser Glu Cys Leu Asn Val Ala Tyr
20 25 30

Gly Val Asp Ala Asn Tyr Leu Asp Gly Val Gly Val Ser Ile Thr Ser
35 40 45

Ile Val Leu Asn Asn Arg His Ile Asn Leu Asp Phe Tyr Ile Ile Ala
50 55 60

Asp Val Tyr Asn Asp Gly Phe Phe Gln Lys Ile Ala Lys Leu Ala Glu
65 70 75 80

Gln Asn Gln Leu Arg Ile Thr Leu Tyr Arg Ile Asn Thr Asp Lys Leu
85 90 95

Gln Cys Leu Pro Cys Thr Gln Val Trp Ser Arg Ala Met Tyr Phe Arg
100 105 110

Leu Phe Ala Phe Gln Leu Leu Gly Leu Thr Leu Asp Arg Leu Leu Tyr
115 120 125

Leu Asp Ala Asp Val Val Cys Lys Gly Asp Ile Ser Gln Leu Leu His
130 135 140

Leu Gly Leu Asn Gly Ala Val Ala Ala Val Val Lys Asp Val Glu Pro
145 150 155 160

Met Gln Glu Lys Ala Val Ser Arg Leu Ser Asp Pro Glu Leu Leu Gly
165 170 175

Gln Tyr Phe Asn Ser Gly Val Val Tyr Leu Asp Leu Lys Lys Trp Ala
180 185 190

Asp Ala Lys Leu Thr Glu Lys Ala Leu Ser Ile Leu Met Ser Lys Asp
195 200 205

Asn Val Tyr Lys Tyr Pro Asp Gln Asp Val Met Asn Val Leu Leu Lys
210 215 220

Gly Met Thr Leu Phe Leu Pro Arg Glu Tyr Asn Thr Ile Tyr Thr Ile
225 230 235 240

Lys Ser Glu Leu Lys Asp Lys Thr His Gln Asn Tyr Lys Lys Leu Ile
245 250 255

Thr Glu Ser Thr Leu Leu Ile His Tyr Thr Gly Ala Thr Lys Pro Trp
260 265 270

His Lys Trp Ala Ile Tyr Pro Ser Val Lys Tyr Tyr Lys Ile Ala Leu
275 280 285

Glu Asn Ser Pro Trp Lys Asp Asp Ser Pro Arg Asp Ala Lys Ser Ile
290 295 300

Ile Glu Phe Lys Lys Asp Ile Asn Ile Phe
305 310

<210> 113 <211> 8391 <212> DNA <213> Mycobacterium bovis <220>
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Met Gly Thr Arg Thr Gly Gly Arg Gly Pro Gly Ser Val Arg Gln Ala
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cct gac gtc ggc cgc cgt gtc ggt gcc cgg cgt gtt gct tac cca gat 96
Pro Asp Val Gly Arg Arg Val Gly Ala Arg Arg Val Ala Tyr Pro Asp
20 25 30
cgc ggc gac ccg ggc gct ggc ccg tca agg cat gga cct cgt ggc cac 144
Arg Gly Asp Pro Gly Ala Gly Pro Ser Arg His Gly Pro Arg Gly His
35 40 45
ccc gcc ggt cgc cat ggc ggg cat tcg caa ggt gtg ctg gcg gtg gaa 192
Pro Ala Gly Arg His Gly Gly His Ser Gln Gly Val Leu Ala Val Glu
50 55 60
gcc ctc aag gct ggt ggg gca cgc gac gtc gag ctg ttt gcc ttg gcc 240
Ala Leu Lys Ala Gly Gly Ala Arg Asp Val Glu Leu Phe Ala Leu Ala
65 70 75 80
cag ttg atc ggt gcc gcc gga acg ctg gtg gcc cgc cgg cgc gaa ttt 288
Gln Leu Ile Gly Ala Ala Gly Thr Leu Val Ala Arg Arg Arg Glu Phe
85 90 95
ccg tcc tgg gcg atc gcg ccg atg gta tcg gtc acc aac gcc gac ccc 336
Pro Ser Trp Ala Ile Ala Pro Met Val Ser Val Thr Asn Ala Asp Pro
100 105 110
gag cgc atc ggc cgg ttg ctc gac gag ttc gcc cag gac gtg cgc acg 384
Glu Arg Ile Gly Arg Leu Leu Asp Glu Phe Ala Gln Asp Val Arg Thr

115					120					125						
gtg	ctg	cca	ccg	gtg	ttg	tcc	atc	cgc	aac	ggc	cgg	cgt	gcc	gtc	gtc	432
Val	Leu	Pro	Pro	Val	Leu	Ser	Ile	Arg	Asn	Gly	Arg	Arg	Ala	Val	Val	
130					135					140						
atc	acc	ggc	acc	ccc	gag	cag	ctg	tcg	cgt	ttc	gag	ctt	tat	tgc	cgc	480
Ile	Thr	Gly	Thr	Pro	Glu	Gln	Leu	Ser	Arg	Phe	Glu	Leu	Tyr	Cys	Arg	
145					150					155					160	
cag	atc	tcc	gag	aag	gaa	gaa	gcc	gac	cgc	aag	aac	aag	gtc	cgc	ggc	528
Gln	Ile	Ser	Glu	Lys	Glu	Glu	Ala	Asp	Arg	Lys	Asn	Lys	Val	Arg	Gly	
165					170					175						
ggc	gac	gtc	ttc	tcg	ccg	gtc	ttc	gag	ccg	gtg	cag	gtg	gag	gtg	ggc	576
Gly	Asp	Val	Phe	Ser	Pro	Val	Phe	Glu	Pro	Val	Gln	Val	Glu	Val	Gly	
180					185					190						
ttt	cac	acc	ccg	cgg	cta	tcc	gac	ggg	atc	gac	atc	gtc	gcg	ggc	tgg	624
Phe	His	Thr	Pro	Arg	Leu	Ser	Asp	Gly	Ile	Asp	Ile	Val	Ala	Gly	Trp	
195					200					205						
gcc	gag	aag	gcg	ggc	ctc	gat	gtc	gcc	ttg	gct	cgg	gag	ctg	gcc	gat	672
Ala	Glu	Lys	Ala	Gly	Leu	Asp	Val	Ala	Leu	Ala	Arg	Glu	Leu	Ala	Asp	
210					215					220						
gcc	atc	ttg	atc	aga	aag	gtc	gac	tgg	gtc	gac	gag	atc	acc	cgt	gtc	720
Ala	Ile	Leu	Ile	Arg	Lys	Val	Asp	Trp	Val	Asp	Glu	Ile	Thr	Arg	Val	
225					230					235					240	
cac	cgg	gcc	ggc	gcc	cgc	tgg	atc	ctc	gac	ctg	ggg	ccg	ggc	gac	atc	768
His	Arg	Ala	Gly	Ala	Arg	Trp	Ile	Leu	Asp	Leu	Gly	Pro	Gly	Asp	Ile	
245					250					255						
ctg	acc	cga	ctg	acc	gca	ccg	gtg	atc	cgc	ggc	ctg	ggc	atc	ggc	atc	816
Leu	Thr	Arg	Leu	Thr	Ala	Pro	Val	Ile	Arg	Gly	Leu	Gly	Ile	Gly	Ile	
260					265					270						
gtg	ccg	gcg	cgt	acc	cgc	ggt	ggc	cag	cgc	aac	ctg	ttc	acc	gtc	ggc	864
Val	Pro	Ala	Arg	Thr	Arg	Gly	Gly	Gln	Arg	Asn	Leu	Phe	Thr	Val	Gly	
275					280					285						
gcc	acc	ccc	gag	gtt	gcc	cgg	gcc	tgg	tcg	agc	tac	gca	ccg	acc	gtg	912
Ala	Thr	Pro	Glu	Val	Ala	Arg	Ala	Trp	Ser	Ser	Tyr	Ala	Pro	Thr	Val	
290					295					300						
gtt	cgc	ctc	ccc	gac	ggc	agg	gtc	aag	ctc	tcg	acg	aag	ttc	acc	cgg	960
Val	Arg	Leu	Pro	Asp	Gly	Arg	Val	Lys	Leu	Ser	Thr	Lys	Phe	Thr	Arg	
305					310					315					320	
ctg	acc	cgc	cgc	tcg	ccg	atc	ctg	ctc	gcg	ggc	atg	acc	ccg	acc	acc	1008
Leu	Thr	Arg	Arg	Ser	Pro	Ile	Leu	Leu	Ala	Gly	Met	Thr	Pro	Thr	Thr	
325					330					335						
gtg	gac	gcc	aag	atc	gtc	gcc	gcg	gcg	gcc	aac	ggc	cgg	cac	tgg	gcc	1056
Val	Asp	Ala	Lys	Ile	Val	Ala	Ala	Ala	Ala	Asn	Gly	Arg	His	Trp	Ala	
340					345					350						
gag	ctg	gcg	gcg	cgg	ggc	agg	tca	ccg	aag	aga	tct	tcg	gta	acc	gca	1104
Glu	Leu	Ala	Ala	Arg	Gly	Arg	Ser	Pro	Lys	Arg	Ser	Ser	Val	Thr	Ala	

355					360					365						
tcg	aac	aaa	tgg	ccg	gcc	tgc	tcg	agc	cgg	gcc	gca	cct	atc	agt	tca	1152
Ser	Asn	Lys	Trp	Pro	Ala	Cys	Ser	Ser	Arg	Ala	Ala	Pro	Ile	Ser	Ser	
370					375					380						
acg	cgc	tgt	tcc	tcg	atc	cct	acc	tgt	gaa	gct	tca	ggg	ggg	cgg	caa	1200
Thr	Arg	Cys	Ser	Ser	Ile	Pro	Thr	Cys	Glu	Ala	Ser	Gly	Gly	Arg	Gln	
385					390					395					400	
gcg	gtt	ggg	gca	gaa	ggc	ccg	cca	gtc	cgg	cgc	cgc	gat	cga	cgg	cgt	1248
Ala	Val	Gly	Ala	Glu	Gly	Pro	Pro	Val	Arg	Arg	Arg	Asp	Arg	Arg	Arg	
405					410					415						
ggg	gat	cag	cgc	cgg	cat	ccc	aga	cct	cga	cga	ggc	cgt	cga	gct	gat	1296
Gly	Asp	Gln	Arg	Arg	His	Pro	Arg	Pro	Arg	Arg	Gly	Arg	Arg	Ala	Asp	
420					425					430						
cga	cga	act	ggg	cga	cat	cgg	cat	cag	cca	cgt	cgt	gtt	caa	acc	cgg	1344
Arg	Arg	Thr	Gly	Arg	His	Arg	His	Gln	Pro	Arg	Arg	Val	Gln	Thr	Arg	
435					440					445						
gac	cat	cga	gca	gat	ccg	ctc	ggg	gat	tcg	cat	cgc	cac	cga	ggg	gcc	1392
Asp	His	Arg	Ala	Asp	Pro	Leu	Gly	Asp	Ser	His	Arg	His	Arg	Gly	Ala	
450					455					460						
cac	caa	gcc	ggg	gat	cat	gca	cgt	cga	ggg	ccg	ggc	gcg	ccg	gcg	ggc	1440
His	Gln	Ala	Gly	Asp	His	Ala	Arg	Arg	Gly	Pro	Gly	Ala	Pro	Ala	Gly	
465					470					475					480	
acc	att	cct	ggg	agg	atc	tca	cac	ctg	ctg	ctg	gct	acc	tac	tcg	gca	1488
Thr	Ile	Pro	Gly	Arg	Ile	Ser	His	Leu	Leu	Leu	Ala	Thr	Tyr	Ser	Ala	
485					490					495						
gat	cgg	gca	ccg	cgc	caa	cat	cac	gtg	tgc	gtc	ggc	ggc	ggc	cat	ctc	1536
Asp	Arg	Ala	Pro	Arg	Gln	His	His	Val	Cys	Val	Gly	Gly	Gly	His	Leu	
500					505					510						
ggc	acc	ccg	aag	aag	ggc	tgc	gga	tat	ttg	tcc	ggg	cct	ggg	cgc	agc	1584
Gly	Thr	Pro	Lys	Lys	Gly	Cys	Gly	Tyr	Leu	Ser	Gly	Pro	Gly	Arg	Ser	
515					520					525						
gta	cgg	ctt	ccc	att	gat	gcc	gat	cga	cgc	atc	ctg	gtc	ggc	acc	gcg	1632
Val	Arg	Leu	Pro	Ile	Asp	Ala	Asp	Arg	Arg	Ile	Leu	Val	Gly	Thr	Ala	
530					535					540						
gcg	atg	gcc	acc	aag	gaa	tcc	acc	acg	tcg	cca	tcg	gtc	aag	cgg	atg	1680
Ala	Met	Ala	Thr	Lys	Glu	Ser	Thr	Thr	Ser	Pro	Ser	Val	Lys	Arg	Met	
545					550					555					560	
ctc	gtc	gac	act	cag	ggc	acc	gac	caa	tgg	atc	agc	gcc	gga	aaa	gcg	1728
Leu	Val	Asp	Thr	Gln	Gly	Thr	Asp	Gln	Trp	Ile	Ser	Ala	Gly	Lys	Ala	
565					570					575						
cag	ggc	cgc	atg	cct	cca	gcc	gag	tca	gct	cgg	tgc	cga	cat	cca	cga	1776
Gln	Gly	Arg	Met	Pro	Pro	Ala	Glu	Ser	Ala	Arg	Cys	Arg	His	Pro	Arg	
580					585					590						
gat	cga	cac	agc	gca	tcc	gtg	cgg	cgc	tgc	tcg	acg	agg	tgg	ccg	gtg	1824
Asp	Arg	His	Ser	Ala	Ser	Val	Arg	Arg	Cys	Ser	Thr	Arg	Trp	Pro	Val	

595					600					605						
acg	cgg	agg	cgg	tcg	cgg	agc	gtc	gca	tgg	cca	aga	ccg	cca	agc	cct	1872
Thr	Arg	Arg	Arg	Ser	Arg	Ser	Val	Ala	Trp	Pro	Arg	Pro	Pro	Ser	Pro	
	610						615					620				
act	tgc	cga	cgt	cgc	cga	cat	gac	cta	cct	gca	gtg	gct	gcg	ggc	gct	1920
Thr	Cys	Arg	Arg	Arg	Arg	His	Asp	Leu	Pro	Ala	Val	Ala	Ala	Gly	Ala	
	625						630				635				640	
acg	tcg	aac	tgg	cca	tcg	ggg	aag	gca	act	cga	ccg	ccg	aca	ccg	cct	1968
Thr	Ser	Asn	Trp	Pro	Ser	Gly	Lys	Ala	Thr	Arg	Pro	Pro	Thr	Pro	Pro	
				645					650					655		
cgg	tgg	gca	gcc	cgt	ggc	tgg	ccg	aca	ctg	gcg	gga	ccg	ctt	cga	gca	2016
Arg	Trp	Ala	Ala	Arg	Gly	Trp	Pro	Thr	Leu	Ala	Gly	Pro	Leu	Arg	Ala	
			660						665				670			
gat	gct	gca	gcg	tgc	cga	agc	ccg	gtt	gca	ccc	aca	gga	ttt	cgg	ccc	2064
Asp	Ala	Ala	Ala	Cys	Arg	Ser	Pro	Val	Ala	Pro	Thr	Gly	Phe	Arg	Pro	
		675					680						685			
gat	cca	gac	gct	att	cac	cga	tgc	tgg	cct	gct	gga	caa	tcc	gca	gca	2112
Asp	Pro	Asp	Ala	Ile	His	Arg	Cys	Trp	Pro	Ala	Gly	Gln	Ser	Ala	Ala	
	690						695				700					
gcg	atc	gcc	gcc	ctc	gtg	gcg	cgc	tac	ccc	gac	gcc	gag	acc	gtg	cag	2160
Ala	Ile	Ala	Ala	Leu	Val	Ala	Arg	Tyr	Pro	Asp	Ala	Glu	Thr	Val	Gln	
	705					710				715					720	
ttg	cat	ccc	gcg	gat	gtg	ccc	ttt	ttc	gtg	acg	ttg	tgc	aag	acg	ctg	2208
Leu	His	Pro	Ala	Asp	Val	Pro	Phe	Phe	Val	Thr	Leu	Cys	Lys	Thr	Leu	
				725					730					735		
ggc	aag	ccg	gtc	aac	ttc	gtg	ccg	gcg	atc	gac	ctc	gtc	gtg	cgc	gct	2256
Gly	Lys	Pro	Val	Asn	Phe	Val	Pro	Ala	Ile	Asp	Leu	Val	Val	Arg	Ala	
			740					745					750			
ggt	ggc	gca	gcg	act	cgc	tgt	ggc	agg	ccc	acg	acg	ccc	gct	acg	acg	2304
Gly	Gly	Ala	Ala	Thr	Arg	Cys	Gly	Arg	Pro	Thr	Thr	Pro	Ala	Thr	Thr	
		755					760					765				
ccg	atg	cgg	tgt	gca	tca	ttc	cgg	gca	cgc	gtc	ggt	agc	cgc	atc	acc	2352
Pro	Met	Arg	Cys	Ala	Ser	Phe	Arg	Ala	Arg	Val	Gly	Ser	Arg	Ile	Thr	
	770					775					780					
cgg	atg	gat	gaa	ccc	gtc	ggt	gag	ttg	ctg	gac	gct	ttc	gag	caa	gcc	2400
Arg	Met	Asp	Glu	Pro	Val	Gly	Glu	Leu	Leu	Asp	Ala	Phe	Glu	Gln	Ala	
	785					790				795					800	
gca	atc	gat	gaa	gtg	ctc	ggc	gcc	ggt	gtc	gag	ccg	aag	gat	gtc	gcg	2448
Ala	Ile	Asp	Glu	Val	Leu	Gly	Ala	Gly	Val	Glu	Pro	Lys	Asp	Val	Ala	
				805					810					815		
tcc	ggc	cgg	ctg	ggc	cgg	gcc	gac	gtg	gcc	gga	ccg	ttg	gct	gtc	gtc	2496
Ser	Gly	Arg	Leu	Gly	Arg	Ala	Asp	Val	Ala	Gly	Pro	Leu	Ala	Val	Val	
			820					825					830			
ctc	gac	gca	ccc	gat	gtg	cgc	tgg	gcc	ggt	cgc	acc	gtg	acc	aac	ccg	2544
Leu	Asp	Ala	Pro	Asp	Val	Arg	Trp	Ala	Gly	Arg	Thr	Val	Thr	Asn	Pro	

835	840	845	
gtg cat cgg atc cgc gac ccg gcc gaa tgg cag gtg cac gat gga ccc Val His Arg Ile Arg Asp Pro Ala Glu Trp Gln Val His Asp Gly Pro 850 855 860			2592
gaa aac ccg cgc gcc gca cac tca tcc acc ggc gcc cgg ctg cag acg Glu Asn Pro Arg Ala Ala His Ser Ser Thr Gly Ala Arg Leu Gln Thr 865 870 875 880			2640
cac ggc gac gac gtc gcc ttg agc gtc gcg cgt ctc ggg cac ctg ggt His Gly Asp Asp Val Ala Leu Ser Val Ala Arg Leu Gly His Leu Gly 885 890 895			2688
cga cat ccg att cac gtt gcc ggc caa cac cgt cga tgg cgg cac ccc Arg His Pro Ile His Val Ala Gly Gln His Arg Arg Trp Arg His Pro 900 905 910			2736
ggt gat cgc cac cga gga cgc cac cac gcc atg cgc acg gtg ctg cga Gly Asp Arg His Arg Gly Arg His His Ala Met Arg Thr Val Leu Arg 915 920 925			2784
tcg ccg ccg gtg tcg aca gcc ccg agt tct tgc tgc ggt ggc caa ccg Ser Pro Pro Val Ser Thr Ala Arg Ser Ser Cys Cys Gly Gly Gln Arg 930 935 940			2832
gac ggc cac ttt gac ggt gga ctg gca ccc cga gcg tgt tgc cga cca Asp Gly His Phe Asp Gly Gly Leu Ala Pro Arg Ala Cys Cys Arg Pro 945 950 955 960			2880
cac cgt cac cgc cac gtt ccg tgc gcg ctg gca ccc agc ctc acc aac His Arg His Arg His Val Arg Cys Ala Leu Ala Pro Ser Leu Thr Asn 965 970 975			2928
gtg ccg acg cga ctc gtc ggc cct tgt tgg cca gcg gtt ttc gcg gcc Val Pro Thr Arg Leu Val Gly Pro Cys Trp Pro Ala Val Phe Ala Ala 980 985 990			2976
atc gga tcg gcg gtc acc gac acc ggt gag ccg gtg gtg gaa ggc ctg Ile Gly Ser Ala Val Thr Asp Thr Gly Glu Pro Val Val Glu Gly Leu 995 1000 1005			3024
ctg agc ctg gtg cat ctg gac acg ccg ccg cgc gtg gtc ggt cag Leu Ser Leu Val His Leu Asp Thr Arg Pro Arg Val Val Gly Gln 1010 1015 1020			3069
ctg ccc acg gtc ccg gcc caa ttg acc gtc acg caa ccg ctg cca Leu Pro Thr Val Pro Ala Gln Leu Thr Val Thr Gln Arg Leu Pro 1025 1030 1035			3114
acg caa ccg ata ccg aca tgg gcc gcg tcg tgc ccg tct ccg tcg Thr Gln Pro Ile Arg Thr Trp Ala Ala Ser Cys Arg Ser Arg Ser 1040 1045 1050			3159
tcg ttc acc gca tgg cgc cgt gat cgc cac tct cga gga gcg att Ser Phe Thr Ala Trp Arg Arg Asp Arg His Ser Arg Gly Ala Ile 1055 1060 1065			3204
cgc gat cct ggg tcg cac ccg ttc gcc gag ctg gac ccg cgc gag Arg Asp Pro Gly Ser His Arg Phe Ala Glu Leu Asp Arg Arg Glu 1070 1075 1080			3249

1070	1075	1080	
ccg gtg gcg cgg tgt cgc gaa cgc cac cga cac ccc gcg cgt cgc 3294 Pro Val Ala Arg Cys Arg Glu Arg His Arg His Pro Ala Arg Arg 1085 1090 1095			
cgc cgc gac gtc acg atc acc gcg ccg gtc gac atg cgc ccg ttc 3339 Arg Arg Asp Val Thr Ile Thr Ala Pro Val Asp Met Arg Pro Phe 1100 1105 1110			
gcg gtg gtg tcc ggc gac cac aac ccc att cac acc gac cgg gcc 3384 Ala Val Val Ser Gly Asp His Asn Pro Ile His Thr Asp Arg Ala 1115 1120 1125			
gcc gct gct tgc cgg cct gga gtc gcc gat cgt gca cgg cat gtg 3429 Ala Ala Ala Cys Arg Pro Gly Val Ala Asp Arg Ala Arg His Val 1130 1135 1140			
gct gtc ggc cgc ggc gca aca cgc ggt gac cgg cac cga cgg gca 3474 Ala Val Gly Arg Gly Ala Thr Arg Gly Asp Arg His Arg Arg Ala 1145 1150 1155			
ggc ccg cca ccg gcc cgg ctg gtc ggc tgg acc gcg cgg ttt ttg 3519 Gly Pro Pro Pro Ala Arg Leu Val Gly Trp Thr Ala Arg Phe Leu 1160 1165 1170			
ggc atg gtg gcc ccg gcg acg agg tgg act tcc ggt cga gcg cgt 3564 Gly Met Val Ala Pro Ala Thr Arg Trp Thr Ser Gly Arg Ala Arg 1175 1180 1185			
cgg atc gac cag ggc gca gag att gtg gac gtg gcc gcg cgc gtc 3609 Arg Ile Asp Gln Gly Ala Glu Ile Val Asp Val Ala Ala Arg Val 1190 1195 1200			
ggg tcg gat cta gtg atg tcg gcc tcc gcg cga ctg gcc gca ccc 3654 Gly Ser Asp Leu Val Met Ser Ala Ser Ala Arg Leu Ala Ala Pro 1205 1210 1215			
aag acg gtc tac gca ttc ccc ggc cag ggc atc caa cac aag ggc 3699 Lys Thr Val Tyr Ala Phe Pro Gly Gln Gly Ile Gln His Lys Gly 1220 1225 1230			
atg ggc atg gag gtg cgc gcc gct cca agg cgg ccc gca agg tgt 3744 Met Gly Met Glu Val Arg Ala Ala Pro Arg Arg Pro Ala Arg Cys 1235 1240 1245			
ggg aca ccg cgg aca agt tca ccc gcg aca ccc tgg gct tct cgg 3789 Gly Thr Pro Arg Thr Ser Ser Pro Ala Thr Pro Trp Ala Ser Arg 1250 1255 1260			
tac tgc acg tgg tcc gcg aca acc cga cca gca tca tcg cca gcg 3834 Tyr Cys Thr Trp Ser Ala Thr Thr Arg Pro Ala Ser Ser Pro Ala 1265 1270 1275			
gtg tgc act acc acc acc gac ggg gtg ctc tac ctg acg cag ttc 3879 Val Cys Thr Thr Thr Thr Asp Gly Val Leu Tyr Leu Thr Gln Phe 1280 1285 1290			
acc cag gtc gcg atg gcg acg gtg gcg gcc ggg cag gtc gcc gag 3924 Thr Gln Val Ala Met Ala Thr Val Ala Ala Gly Gln Val Ala Glu			

1295	1300	1305	
atg cgt gaa cag gga gcc ttc gtc gaa ggc gcc atc gcg tgc ggc Met Arg Glu Gln Gly Ala Phe Val Glu Gly Ala Ile Ala Cys Gly 1310 1315 1320			3969
cac tcg gtc ggc gag tac acc gcg ctg gcc tgc gtg acc ggc atc His Ser Val Gly Glu Tyr Thr Ala Leu Ala Cys Val Thr Gly Ile 1325 1330 1335			4014
tac caa ctg gaa gcc ttg ctg gag atg gtg ttt cac cgc ggg tcg Tyr Gln Leu Glu Ala Leu Leu Glu Met Val Phe His Arg Gly Ser 1340 1345 1350			4059
aag atg cac gac atc gtt ccg gcg gac gag ctc ggc cgc tcc aac Lys Met His Asp Ile Val Pro Arg Asp Glu Leu Gly Arg Ser Asn 1355 1360 1365			4104
tat cgg ctg tcg gcc atc cgg ccg tcc cag atc gac ctc gac gac Tyr Arg Leu Ser Ala Ile Arg Pro Ser Gln Ile Asp Leu Asp Asp 1370 1375 1380			4149
gcc gac gtg ccc gcg ttc gtc gcc ggg atc gcg gag agc acc ggt Ala Asp Val Pro Ala Phe Val Ala Gly Ile Ala Glu Ser Thr Gly 1385 1390 1395			4194
gaa ttc ctg gag atc gag aat ttc aac ctc ggt ggc tcg caa tac Glu Phe Leu Glu Ile Glu Asn Phe Asn Leu Gly Gly Ser Gln Tyr 1400 1405 1410			4239
gcg atc gcg ggc acg gta cgc ggc ctc gag gcg ctc gag gcc gag Ala Ile Ala Gly Thr Val Arg Gly Leu Glu Ala Leu Glu Ala Glu 1415 1420 1425			4284
gtg gag cgg cgc cgc gag ctc acc ggc ggc cga cgg tcg ttc att Val Glu Arg Arg Arg Glu Leu Thr Gly Gly Arg Arg Ser Phe Ile 1430 1435 1440			4329
ttg gtg ccc ggc atc gat gtt ccg ttc cac tcg cga gtg ctg cgg Leu Val Pro Gly Ile Asp Val Pro Phe His Ser Arg Val Leu Arg 1445 1450 1455			4374
gtc ggg gtg gcc gaa ttc cgg cgc tcg ctg gac cgg gtc atg cgg Val Gly Val Ala Glu Phe Arg Arg Ser Leu Asp Arg Val Met Arg 1460 1465 1470			4419
ccg acg cgg acc cga cct gat cat cgg gcg cta cat tcc caa cct Pro Thr Arg Thr Arg Pro Asp His Arg Ala Leu His Ser Gln Pro 1475 1480 1485			4464
ggt gcc gcg gaa gtt caa ccc tgg acc gcg act tca tcc agg aaa Gly Ala Ala Glu Val Gln Pro Trp Thr Ala Thr Ser Ser Arg Lys 1490 1495 1500			4509
tcc ggg att tgg tgc ccc gcc gag ccg ctc gac gag atc ctc gcc Ser Gly Ile Trp Cys Pro Ala Glu Pro Leu Asp Glu Ile Leu Ala 1505 1510 1515			4554
gac tac gac acc tgg ctt cgc gac gac cgg cga gat ggc gcg cac Asp Tyr Asp Thr Trp Leu Arg Asp Asp Arg Arg Asp Gly Ala His 1520 1525 1530			4599

1520	1525	1530	
ggt gtt cat cga gct gct ggc Gly Val His Arg Ala Ala Gly 1535	atg gca att cgc cag Met Ala Ile Arg Gln 1540	ccc ggt gcg Pro Gly Ala 1545	4644
ctg gat cga gac gca gga tct Leu Asp Arg Asp Ala Gly Ser 1550	gct gtt cat cga gga Ala Val His Arg Gly 1555	ggc gcc gcg Gly Ala Gly 1560	4689
ggg ctg ggt gtg gag cga ttc Gly Leu Gly Val Glu Arg Phe 1565	gtc gag atc ggt gtg Val Glu Ile Gly Val 1570	aag agc tca Lys Ser Ser 1575	4734
ccg acg gtg gcg ggg tct tgc Pro Thr Val Ala Gly Ser Cys 1580	cac caa cac cct caa His Gln His Pro Gln 1585	act gcc cga Thr Ala Arg 1590	4779
ata cgc cca cag cac agt gaa Ile Arg Pro Gln His Ser Glu 1595	gtg ctc aac gcc gag Val Leu Asn Ala Glu 1600	cgt gat gcg Arg Asp Ala 1605	4824
cgg tgc tgt tcg cca ccg aca Arg Cys Cys Ser Pro Pro Thr 1610	ccg acc cgg agc cgg Pro Thr Arg Ser Arg 1615	agc cgg agg Ser Arg Arg 1620	4869
aag acg agc cgg tcg cgg aat Lys Thr Ser Arg Ser Arg Asn 1625	cgc ccg cgc cgg acg Arg Pro Arg Arg Thr 1630	tcg tct cgg Ser Ser Arg 1635	4914
aag ccg ccc ccg tcg cgc cgg Lys Pro Pro Pro Ser Arg Arg 1640	ccg ctt cgt cgg cgg Pro Leu Arg Arg Arg 1645	gcc cgc gtc Ala Arg Val 1650	4959
ccg acg atc tgg ttt tcg acg Pro Thr Ile Trp Phe Ser Thr 1655	ccg ccg atg cca cgc Pro Pro Met Pro Arg 1660	tgc gtg atc Cys Val Ile 1665	5004
gcg ctc tcg gcc aag atg cgc Ala Leu Ser Ala Lys Met Arg 1670	atc gac cag atc gaa Ile Asp Gln Ile Glu 1675	gaa ctc gac Glu Leu Asp 1680	5049
tcc atc gag tcc atc acc gac Ser Ile Glu Ser Ile Thr Asp 1685	ggt gcg tcg tcg cgg Gly Ala Ser Ser Arg 1690	cgc aac cag Arg Asn Gln 1695	5094
ctg ctg gtg gac ctg ggc tcc Leu Leu Val Asp Leu Gly Ser 1700	gag ctg aac ctc ggt Glu Leu Asn Leu Gly 1705	gcc att gaa Ala Ile Glu 1710	5139
cgg cgc cgc cga atc gga cct Arg Arg Arg Arg Ile Gly Pro 1715	ggc cgg tct gcg ctc Gly Arg Ser Ala Leu 1720	aca ggt gac Thr Gly Asp 1725	5184
caa act ggc gcg cac cta caa Gln Thr Gly Ala His Leu Gln 1730	cgt tac ggc cca gtg Arg Tyr Gly Pro Val 1735	ctt tcc gac Leu Ser Asp 1740	5229
gcc atc aac gac cac gtt cgc Ala Ile Asn Asp His Val Arg 1740	acc gtc ctc gga ccg Thr Val Leu Gly Pro 1745	tcg ggc aag Ser Gly Lys 1750	5274

1745	1750	1755	
cgg ccc ggc gcc atc gcc gag Arg Pro Gly Ala Ile Ala Glu 1760 1765	cgg gtg aag aag acc Arg Val Lys Lys Thr 1770	tgg gag ctc Trp Glu Leu	5319
ggt gag gct ggg cca agc atg Gly Glu Ala Gly Pro Ser Met 1775 1780	tca ccg tcg agg tcg Ser Pro Ser Arg Ser 1785	cgc tgg gca Arg Trp Ala	5364
ccc gcg agg gca gca gcg ttc Pro Ala Arg Ala Ala Ala Phe 1790 1795	gcg gcg gcg cca tgg Ala Ala Ala Pro Trp 1800	gcc acc tgc Ala Thr Cys	5409
acg agg gcg cgc tgg ccg atg Thr Arg Ala Arg Trp Pro Met 1805 1810	ccg cct ccg tcg aca Pro Pro Pro Ser Thr 1815	agg tca tcg Arg Ser Ser	5454
acg cgg cgg tcg cat cgg tgg Thr Arg Arg Ser His Arg Trp 1820 1825	ccg cgg cca ggg cgt Pro Arg Pro Gly Arg 1830	ttc ggt agc Phe Gly Ser	5499
gct gcg tcg gcc ggt agt ggc Ala Ala Ser Ala Gly Ser Gly 1835 1840	ggc gcc acc atc gac Gly Ala Thr Ile Asp 1845	gcg gcc gcg Ala Ala Ala	5544
ctc agc gag ttc acc gac caa Leu Ser Glu Phe Thr Asp Gln 1850 1855	atc acc ggc cgt gag Ile Thr Gly Arg Glu 1860	ggc gtg ctg Gly Val Leu	5589
cct ccg cgg ccc gcc tgg tgc Pro Pro Arg Pro Ala Trp Cys 1865 1870	tgg ggc agc tgg gac Trp Gly Ser Trp Asp 1875	tgg acg acc Trp Thr Thr	5634
cca tca acc gtt gcc ggc gcg Pro Ser Thr Val Ala Gly Arg 1880 1885	ccc gat tcc gag ctg Pro Asp Ser Glu Leu 1890	atc gac ttg Ile Asp Leu	5679
gtc acc gcc gaa ctg gga cgg Val Thr Ala Glu Leu Gly Arg 1895 1900	act ggc cgc ggt tgg Thr Gly Arg Gly Trp 1905	tgg cac cgg Trp His Arg	5724
tgt tcg acc cca aga agg ccg Cys Ser Thr Pro Arg Arg Pro 1910 1915	tcg tat tcg acg acc Ser Tyr Ser Thr Thr 1920	gct ggc cag Ala Gly Gln	5769
cgc ccg cga gga cct ggt gaa Arg Pro Arg Gly Pro Gly Glu 1925 1930	gct gtg gct gac cga Ala Val Ala Asp Arg 1935	cgg aag gac Arg Lys Asp	5814
cga agg cga cat cga cgc cga Arg Arg Arg His Arg Arg Arg 1940 1945	ctg gcc gcg ctg gcg Leu Ala Ala Leu Ala 1950	gag cgc ttc Glu Arg Phe	5859
gag ggt gcc gcc acg tcg tgg Glu Gly Ala Ala Thr Ser Trp 1955 1960	cga ccc agg cta cct Arg Pro Arg Leu Pro 1965	ggt ggc aag Gly Gly Lys	5904
gta agt cgc tcg cgc ggg ccg Val Ser Arg Ser Arg Gly Pro	gca gat cca tgc atc Ala Asp Pro Cys Ile	gct gta cgg Ala Val Arg	5949

1970	1975	1980	
ccg cat gcc gcc ggc gcc gag aac ccc gaa ccc cgc gta cgg cgg Pro His Ala Ala Gly Ala Glu Asn Pro Glu Pro Arg Val Arg Arg 1985 1990 1995			5994
cga agt tgc cgt ggt gac cgg cgc ttc gaa ggg ttc gat cgc cgc Arg Ser Cys Arg Gly Asp Arg Arg Phe Glu Gly Phe Asp Arg Arg 2000 2005 2010			6039
gtc ggt ggt ggc tcg gct gct cga cgc gga gcc acc gtc atc gcg Val Gly Gly Gly Ser Ala Ala Arg Arg Gly Ala Thr Val Ile Ala 2015 2020 2025			6084
acc acc tcc aag ctc gac gag gag cgg ctg cgg ttc tac cgc acg Thr Thr Ser Lys Leu Asp Glu Glu Arg Leu Arg Phe Tyr Arg Thr 2030 2035 2040			6129
ctg tat cgc gac cac gcc cgt tac ggc gcg gcg ctg tgg ctg gtc Leu Tyr Arg Asp His Ala Arg Tyr Gly Ala Ala Leu Trp Leu Val 2045 2050 2055			6174
gcg gcg aac atg gcg tcc tac tcc gac gtc gac gcc ctg gtc gaa Ala Ala Asn Met Ala Ser Tyr Ser Asp Val Asp Ala Leu Val Glu 2060 2065 2070			6219
tgg atc ggc acc gaa cag acc gaa agc ctt ggg ccg cag tcg att Trp Ile Gly Thr Glu Gln Thr Glu Ser Leu Gly Pro Gln Ser Ile 2075 2080 2085			6264
cac atc aaa gac gcg cag acc ccg acg ctg ctg ttc cgt tcg cgg His Ile Lys Asp Ala Gln Thr Pro Thr Leu Leu Phe Arg Ser Arg 2090 2095 2100			6309
cgc acg cgt gtc ggg act gtc gga ggc cgg ttc gcg cgc cga gat Arg Thr Arg Val Gly Thr Val Gly Gly Arg Phe Ala Arg Arg Asp 2105 2110 2115			6354
gga gat gaa agt gct gct gtg gcg gtg caa cgg ctg atc ggc ggc Gly Asp Glu Ser Ala Ala Val Ala Val Gln Arg Leu Ile Gly Gly 2120 2125 2130			6399
ctg tcg acg atc ggc gcc gaa cgc gac atg ccg tcg cgg ctc gag Leu Ser Thr Ile Gly Ala Glu Arg Asp Met Pro Ser Arg Leu Glu 2135 2140 2145			6444
cgt ggt gct gcc cgg ctc gcc caa ccg tgg cat gtt cgg cgg cga Arg Gly Ala Ala Arg Leu Ala Gln Pro Trp His Val Arg Arg Arg 2150 2155 2160			6489
cgg gcc cta cgg cga agc caa gtc cgc gct gga tgc cgt ggt gac Arg Ala Leu Arg Arg Ser Gln Val Arg Ala Gly Cys Arg Gly Asp 2165 2170 2175			6534
gcg ctg gca cgc cga gtc gtc ctg ggc ggc acg ggt cag cct ggc Ala Leu Ala Arg Arg Val Val Leu Gly Gly Thr Gly Gln Pro Gly 2180 2185 2190			6579
gca cgc gct cat cgg ctg gac ccg cgg cac cgg gct gat ggg cca Ala Arg Ala His Arg Leu Asp Pro Arg His Arg Ala Asp Gly Pro 2200 2205 2210			6624

2195	2200	2205	
caa cga tgc cat cgt ggc cgc Gln Arg Cys His Arg Gly Arg 2210	cgt cga aga ggc cgc Arg Arg Arg Gly Arg 2215	cgg ggt cac cac Arg Gly His His 2220	6669
cta ctc gac cga cga gat ggc Leu Leu Asp Arg Arg Asp Gly 2225	gcg gct gct gct cga Ala Ala Ala Ala Arg 2230	cct gtg tca Pro Val Ser 2235	6714
tgc gga atc caa ggt ggc tgc Cys Gly Ile Gln Gly Gly Cys 2240	ggc cgt tcg ccg atc Gly Arg Ser Pro Ile 2245	aag gcc gac Lys Ala Asp 2250	6759
ctg acc ggg ggc ctg ccg agg Leu Thr Gly Gly Leu Pro Arg 2255	cca acc tcg aca tgg Pro Thr Ser Thr Trp 2260	ccg agc tgg Pro Ser Trp 2265	6804
cgg cca agg cgc gcg agc aga Arg Pro Arg Arg Ala Ser Arg 2270	tgt cgg cag ccg cgc Cys Arg Gln Arg Arg 2275	ccg tcg acg Pro Ser Thr 2280	6849
agg acg ccg agg ccc ctg gcg Arg Thr Pro Arg Pro Leu Ala 2285	cca tcg ccg cgc tgc Pro Ser Pro Arg Cys 2290	cgt cgc cgc Arg Arg Arg 2295	6894
ccc ggt ttc acc ccc gca ccg Pro Gly Phe Thr Pro Ala Pro 2300	ccg ccg caa tgg gac Pro Pro Gln Trp Asp 2305	gac ctc gat Asp Leu Asp 2310	6939
gtc gac ccg gcc gac ctg gtg Val Asp Pro Ala Asp Leu Val 2315	gtg atc gtc ggc ggc Val Ile Val Gly Gly 2320	cgc gaa atc Arg Glu Ile 2325	6984
ggc ccg tac ggc tcg tca cgc Gly Pro Tyr Gly Ser Ser Arg 2330	acc ccg ttc gag atg Thr Arg Phe Glu Met 2335	gag gtc gaa Glu Val Glu 2340	7029
aac gag ctg tcg gcg gcc ggc Asn Glu Leu Ser Ala Ala Gly 2345	gtg ctg gag ctg gcc Val Leu Glu Leu Ala 2350	tgg acc act Trp Thr Thr 2355	7074
ggg ttg atc gct ggg aga cga Gly Leu Ile Ala Gly Arg Arg 2360	ccc gca acc ccg ttg Pro Ala Thr Arg Leu 2365	gta cga cac Val Arg His 2370	7119
cga atc ccg cga aat ggt cga Arg Ile Arg Arg Asn Gly Arg 2375	cga atc cga gtt ggt Arg Ile Arg Val Gly 2380	gca gcg cta Ala Ala Leu 2385	7164
cac gac gcc gtg gtg cag cgc His Asp Ala Val Val Gln Arg 2390	gtc ggc att cgc gaa Val Gly Ile Arg Glu 2395	ttc gtt gat Phe Val Asp 2400	7209
gac ggc gcg atc gac ccc gac Asp Gly Ala Ile Asp Pro Asp 2405	cac gcc tcg ccg ctg His Ala Ser Pro Leu 2410	ctg gtg tcg Leu Val Ser 2415	7254
gtg ttc ctg gag aag gac ttc Val Phe Leu Glu Lys Asp Phe 2420	gcg ttc gtg gtg tcc Ala Phe Val Val Ser 2425	tcg gag gcc Ser Glu Ala 2430	7299

2420					2425					2430					
gat	gcg	cgc	gcc	ttc	gtc	gag	ttc	gat	ccc	gag	cac	acg	gtc	atc	7344
Asp	Ala	Arg	Ala	Phe	Val	Glu	Phe	Asp	Pro	Glu	His	Thr	Val	Ile	
	2435						2440				2445				
cgg	ccg	gtg	ccc	gac	tcc	acc	gac	tgg	cag	gtc	atc	cgc	aag	gcc	7389
Arg	Pro	Val	Pro	Asp	Ser	Thr	Asp	Trp	Gln	Val	Ile	Arg	Lys	Ala	
	2450						2455				2460				
ggc	acc	gag	atc	cgg	gtg	ccg	cga	aag	acc	aag	ctg	tcc	cgc	gtc	7434
Gly	Thr	Glu	Ile	Arg	Val	Pro	Arg	Lys	Thr	Lys	Leu	Ser	Arg	Val	
	2465						2470				2475				
gtc	ggc	ggc	cag	atc	ccg	acc	ggg	ttc	gac	ccg	acg	gtg	tgg	ggc	7479
Val	Gly	Gly	Gln	Ile	Pro	Thr	Gly	Phe	Asp	Pro	Thr	Val	Trp	Gly	
	2480						2485				2490				
atc	agc	gca	gac	atg	gcc	ggt	tcc	atc	gac	cgg	ttg	gcg	gta	tgg	7524
Ile	Ser	Ala	Asp	Met	Ala	Gly	Ser	Ile	Asp	Arg	Leu	Ala	Val	Trp	
	2495						2500				2505				
aac	atg	tgg	cgg	acc	gtc	gac	cgg	ttc	ctg	tcg	tcc	ggt	ttc	agc	7569
Asn	Met	Trp	Arg	Thr	Val	Asp	Arg	Phe	Leu	Ser	Ser	Gly	Phe	Ser	
	2510						2515				2520				
ccg	gcc	gag	gtg	atg	cgt	tac	gtg	cac	ccg	agt	ttg	gtg	gcc	aac	7614
Pro	Ala	Glu	Val	Met	Arg	Tyr	Val	His	Pro	Ser	Leu	Val	Ala	Asn	
	2525						2530				2535				
acc	cag	ggc	acc	ggc	atg	ggc	ggc	ggc	acg	tcg	atg	cag	acg	atg	7659
Thr	Gln	Gly	Thr	Gly	Met	Gly	Gly	Gly	Thr	Ser	Met	Gln	Thr	Met	
	2540						2545				2550				
tac	cac	ggc	aat	ctg	ttg	ggc	cgc	aac	aag	ccg	aac	gac	atc	ttc	7704
Tyr	His	Gly	Asn	Leu	Leu	Gly	Arg	Asn	Lys	Pro	Asn	Asp	Ile	Phe	
	2555						2560				2565				
cag	gaa	gtc	ttg	ccg	ata	tca	ttc	gcc	gcg	cac	gtg	gtt	cag	tcc	7749
Gln	Glu	Val	Leu	Pro	Ile	Ser	Phe	Ala	Ala	His	Val	Val	Gln	Ser	
	2570						2575				2580				
tac	gtc	ggt	agc	tac	ggt	gcg	atg	atc	cac	ccg	gta	gcc	gcg	tgc	7794
Tyr	Val	Gly	Ser	Tyr	Gly	Ala	Met	Ile	His	Pro	Val	Ala	Ala	Cys	
	2585						2590				2595				
gcc	acc	gcc	gcg	gtg	tcg	gtc	gag	gaa	ggt	gtc	gac	aag	atc	cgg	7839
Ala	Thr	Ala	Ala	Val	Ser	Val	Glu	Glu	Gly	Val	Asp	Lys	Ile	Arg	
	2600						2605				2610				
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Leu	Gly	Arg	Leu	Asn	Trp	Trp	Ser	Ala	Ala	Val	Asp	Asp	Leu	Thr	
	2615						2620				2625				
ctg	gag	ggc	atc	atc	gga	ttc	ggt	gac	atg	gcc	gcc	acc	gcc	gac	7929
Leu	Glu	Gly	Ile	Ile	Gly	Phe	Gly	Asp	Met	Ala	Ala	Thr	Ala	Asp	
	2630						2635				2640				
acg	tcc	atg	atg	cgc	ggc	cgc	ggc	atc	cac	gac	tcg	aag	ttt	tcc	7974
Thr	Ser	Met	Met	Arg	Gly	Arg	Gly	Ile	His	Asp	Ser	Lys	Phe	Ser	

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cgg ccc aac gac cgc cgc cgt	ctg gct tcg tcg aag	ccc aag gcg	8019
Arg Pro Asn Asp Arg Arg Arg	Leu Ala Ser Ser Lys	Pro Lys Ala	
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gcg gga cga tcc tgt tgg gcg	cgg gga cct ggc gct	gcg gat ggg	8064
Ala Gly Arg Ser Cys Trp Ala	Arg Gly Pro Gly Ala	Ala Asp Gly	
2675	2680	2685	
gct gcc ggt gct ggc ggt ggt	ggg ttc gcg cag tcg	ttc ggc gac	8109
Ala Ala Gly Ala Gly Gly Gly	Gly Phe Ala Gln Ser	Phe Gly Asp	
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ggc gtg cac acc tcg atc cgc	ccc ggg cct ggg cgc	gct ggg ggc	8154
Gly Val His Thr Ser Ile Arg	Pro Gly Pro Gly Arg	Ala Gly Gly	
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ggc gcg cgg cgg caa gga ttc	agc tgc ggc ggg cgc	tgg cca agc	8199
Gly Ala Arg Arg Gln Gly Phe	Ser Cys Gly Gly Arg	Trp Pro Ser	
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tgc gtg gcc gcc gac gac gtg	gcg gtc atc tcc aag	cac gac acc	8244
Cys Val Ala Ala Asp Asp Val	Ala Val Ile Ser Lys	His Asp Thr	
2735	2740	2745	
tcg acg ctg gcc aac gat ccc	aac gag acc gag ttg	cat gaa cgg	8289
Ser Thr Leu Ala Asn Asp Pro	Asn Glu Thr Glu Leu	His Glu Arg	
2750	2755	2760	
ctc gcc gac gcc ctg ggc cgt	tcc gag ggc gcc ccg	ctg ttc gtg	8334
Leu Ala Asp Ala Leu Gly Arg	Ser Glu Gly Ala Pro	Leu Phe Val	
2765	2770	2775	
gtg tcg cag aag agc ctg acc	ggc cag cca agg gcg	gcg cgg cgg	8379
Val Ser Gln Lys Ser Leu Thr	Gly Gln Pro Arg Ala	Ala Arg Arg	
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Ser Ser Arg			
2795			

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35 40 45

Pro Ala Gly Arg His Gly Gly His Ser Gln Gly Val Leu Ala Val Glu
50 55 60

Ala Leu Lys Ala Gly Gly Ala Arg Asp Val Glu Leu Phe Ala Leu Ala
65 70 75 80

Gln Leu Ile Gly Ala Ala Gly Thr Leu Val Ala Arg Arg Arg Glu Phe
85 90 95

Pro Ser Trp Ala Ile Ala Pro Met Val Ser Val Thr Asn Ala Asp Pro
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Glu Arg Ile Gly Arg Leu Leu Asp Glu Phe Ala Gln Asp Val Arg Thr
115 120 125

Val Leu Pro Pro Val Leu Ser Ile Arg Asn Gly Arg Arg Ala Val Val
130 135 140

Ile Thr Gly Thr Pro Glu Gln Leu Ser Arg Phe Glu Leu Tyr Cys Arg
145 150 155 160

Gln Ile Ser Glu Lys Glu Glu Ala Asp Arg Lys Asn Lys Val Arg Gly
165 170 175

Gly Asp Val Phe Ser Pro Val Phe Glu Pro Val Gln Val Glu Val Gly
180 185 190

Phe His Thr Pro Arg Leu Ser Asp Gly Ile Asp Ile Val Ala Gly Trp
195 200 205

Ala Glu Lys Ala Gly Leu Asp Val Ala Leu Ala Arg Glu Leu Ala Asp
210 215 220

Ala Ile Leu Ile Arg Lys Val Asp Trp Val Asp Glu Ile Thr Arg Val
225 230 235 240

His Arg Ala Gly Ala Arg Trp Ile Leu Asp Leu Gly Pro Gly Asp Ile
245 250 255

Leu Thr Arg Leu Thr Ala Pro Val Ile Arg Gly Leu Gly Ile Gly Ile
260 265 270

Val Pro Ala Arg Thr Arg Gly Gly Gln Arg Asn Leu Phe Thr Val Gly
275 280 285

Ala Thr Pro Glu Val Ala Arg Ala Trp Ser Ser Tyr Ala Pro Thr Val
290 295 300

Val Arg Leu Pro Asp Gly Arg Val Lys Leu Ser Thr Lys Phe Thr Arg
305 310 315 320

Leu Thr Arg Arg Ser Pro Ile Leu Leu Ala Gly Met Thr Pro Thr Thr
325 330 335

Val Asp Ala Lys Ile Val Ala Ala Ala Ala Asn Gly Arg His Trp Ala
340 345 350

Glu Leu Ala Ala Arg Gly Arg Ser Pro Lys Arg Ser Ser Val Thr Ala
355 360 365

Ser Asn Lys Trp Pro Ala Cys Ser Ser Arg Ala Ala Pro Ile Ser Ser
370 375 380

Thr Arg Cys Ser Ser Ile Pro Thr Cys Glu Ala Ser Gly Gly Arg Gln
385 390 395 400

Ala Val Gly Ala Glu Gly Pro Pro Val Arg Arg Arg Asp Arg Arg Arg
405 410 415

Gly Asp Gln Arg Arg His Pro Arg Pro Arg Arg Gly Arg Arg Ala Asp
420 425 430

Arg Arg Thr Gly Arg His Arg His Gln Pro Arg Arg Val Gln Thr Arg
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Asp His Arg Ala Asp Pro Leu Gly Asp Ser His Arg His Arg Gly Ala
450 455 460

His Gln Ala Gly Asp His Ala Arg Arg Gly Pro Gly Ala Pro Ala Gly
465 470 475 480

Thr Ile Pro Gly Arg Ile Ser His Leu Leu Leu Ala Thr Tyr Ser Ala
485 490 495

Asp Arg Ala Pro Arg Gln His His Val Cys Val Gly Gly Gly His Leu
500 505 510

Gly Thr Pro Lys Lys Gly Cys Gly Tyr Leu Ser Gly Pro Gly Arg Ser
515 520 525

Val Arg Leu Pro Ile Asp Ala Asp Arg Arg Ile Leu Val Gly Thr Ala
530 535 540

Ala Met Ala Thr Lys Glu Ser Thr Thr Ser Pro Ser Val Lys Arg Met
 545 550 555 560

Leu Val Asp Thr Gln Gly Thr Asp Gln Trp Ile Ser Ala Gly Lys Ala
 565 570 575

Gln Gly Arg Met Pro Pro Ala Glu Ser Ala Arg Cys Arg His Pro Arg
 580 585 590

Asp Arg His Ser Ala Ser Val Arg Arg Cys Ser Thr Arg Trp Pro Val
 595 600 605

Thr Arg Arg Arg Ser Arg Ser Val Ala Trp Pro Arg Pro Pro Ser Pro
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Thr Cys Arg Arg Arg Arg His Asp Leu Pro Ala Val Ala Ala Gly Ala
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Thr Ser Asn Trp Pro Ser Gly Lys Ala Thr Arg Pro Pro Thr Pro Pro
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Arg Trp Ala Ala Arg Gly Trp Pro Thr Leu Ala Gly Pro Leu Arg Ala
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Asp Ala Ala Ala Cys Arg Ser Pro Val Ala Pro Thr Gly Phe Arg Pro
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Asp Pro Asp Ala Ile His Arg Cys Trp Pro Ala Gly Gln Ser Ala Ala
 690 695 700

Ala Ile Ala Ala Leu Val Ala Arg Tyr Pro Asp Ala Glu Thr Val Gln
 705 710 715 720

Leu His Pro Ala Asp Val Pro Phe Phe Val Thr Leu Cys Lys Thr Leu
 725 730 735

Gly Lys Pro Val Asn Phe Val Pro Ala Ile Asp Leu Val Val Arg Ala
 740 745 750

Gly Gly Ala Ala Thr Arg Cys Gly Arg Pro Thr Thr Pro Ala Thr Thr
 755 760 765

Pro Met Arg Cys Ala Ser Phe Arg Ala Arg Val Gly Ser Arg Ile Thr
 770 775 780

Arg Met Asp Glu Pro Val Gly Glu Leu Leu Asp Ala Phe Glu Gln Ala
785 790 795 800

Ala Ile Asp Glu Val Leu Gly Ala Gly Val Glu Pro Lys Asp Val Ala
805 810 815

Ser Gly Arg Leu Gly Arg Ala Asp Val Ala Gly Pro Leu Ala Val Val
820 825 830

Leu Asp Ala Pro Asp Val Arg Trp Ala Gly Arg Thr Val Thr Asn Pro
835 840 845

Val His Arg Ile Arg Asp Pro Ala Glu Trp Gln Val His Asp Gly Pro
850 855 860

Glu Asn Pro Arg Ala Ala His Ser Ser Thr Gly Ala Arg Leu Gln Thr
865 870 875 880

His Gly Asp Asp Val Ala Leu Ser Val Ala Arg Leu Gly His Leu Gly
885 890 895

Arg His Pro Ile His Val Ala Gly Gln His Arg Arg Trp Arg His Pro
900 905 910

Gly Asp Arg His Arg Gly Arg His His Ala Met Arg Thr Val Leu Arg
915 920 925

Ser Pro Pro Val Ser Thr Ala Arg Ser Ser Cys Cys Gly Gly Gln Arg
930 935 940

Asp Gly His Phe Asp Gly Gly Leu Ala Pro Arg Ala Cys Cys Arg Pro
945 950 955 960

His Arg His Arg His Val Arg Cys Ala Leu Ala Pro Ser Leu Thr Asn
965 970 975

Val Pro Thr Arg Leu Val Gly Pro Cys Trp Pro Ala Val Phe Ala Ala
980 985 990

Ile Gly Ser Ala Val Thr Asp Thr Gly Glu Pro Val Val Glu Gly Leu
995 1000 1005

Leu Ser Leu Val His Leu Asp Thr Arg Pro Arg Val Val Gly Gln
1010 1015 1020

Leu Pro	Thr Val	Pro Ala	Gln	Leu Thr	Val Thr	Gln	Arg Leu	Pro
1025			1030			1035		
Thr Gln	Pro Ile	Arg Thr	Trp	Ala Ala	Ser Cys	Arg	Ser Arg	Ser
1040			1045			1050		
Ser Phe	Thr Ala	Trp Arg	Arg	Asp Arg	His Ser	Arg	Gly Ala	Ile
1055			1060			1065		
Arg Asp	Pro Gly	Ser His	Arg	Phe Ala	Glu Leu	Asp	Arg Arg	Glu
1070			1075			1080		
Pro Val	Ala Arg	Cys Arg	Glu	Arg His	Arg His	Pro	Ala Arg	Arg
1085			1090			1095		
Arg Arg	Asp Val	Thr Ile	Thr	Ala Pro	Val Asp	Met	Arg Pro	Phe
1100			1105			1110		
Ala Val	Val Ser	Gly Asp	His	Asn Pro	Ile His	Thr	Asp Arg	Ala
1115			1120			1125		
Ala Ala	Ala Cys	Arg Pro	Gly	Val Ala	Asp Arg	Ala	Arg His	Val
1130			1135			1140		
Ala Val	Gly Arg	Gly Ala	Thr	Arg Gly	Asp Arg	His	Arg Arg	Ala
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Gly Pro	Pro Pro	Ala Arg	Leu	Val Gly	Trp Thr	Ala	Arg Phe	Leu
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Gly Met	Val Ala	Pro Ala	Thr	Arg Trp	Thr Ser	Gly	Arg Ala	Arg
1175			1180			1185		
Arg Ile	Asp Gln	Gly Ala	Glu	Ile Val	Asp Val	Ala	Ala Arg	Val
1190			1195			1200		
Gly Ser	Asp Leu	Val Met	Ser	Ala Ser	Ala Arg	Leu	Ala Ala	Pro
1205			1210			1215		
Lys Thr	Val Tyr	Ala Phe	Pro	Gly Gln	Gly Ile	Gln	His Lys	Gly
1220			1225			1230		
Met Gly	Met Glu	Val Arg	Ala	Ala Pro	Arg Arg	Pro	Ala Arg	Cys
1235			1240			1245		

Gly Thr	Pro Arg Thr Ser Ser	Pro Ala Thr Pro Trp	Ala Ser Arg
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Tyr Cys	Thr Trp Ser Ala Thr	Thr Arg Pro Ala Ser	Ser Pro Ala
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Val Cys	Thr Thr Thr Thr Asp	Gly Val Leu Tyr Leu	Thr Gln Phe
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Thr Gln	Val Ala Met Ala Thr	Val Ala Ala Gly Gln	Val Ala Glu
1295	1300	1305	
Met Arg	Glu Gln Gly Ala Phe	Val Glu Gly Ala Ile	Ala Cys Gly
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His Ser	Val Gly Glu Tyr Thr	Ala Leu Ala Cys Val	Thr Gly Ile
1325	1330	1335	
Tyr Gln	Leu Glu Ala Leu Leu	Glu Met Val Phe His	Arg Gly Ser
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Lys Met	His Asp Ile Val Pro	Arg Asp Glu Leu Gly	Arg Ser Asn
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Tyr Arg	Leu Ser Ala Ile Arg	Pro Ser Gln Ile Asp	Leu Asp Asp
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Ala Asp	Val Pro Ala Phe Val	Ala Gly Ile Ala Glu	Ser Thr Gly
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Glu Phe	Leu Glu Ile Glu Asn	Phe Asn Leu Gly Gly	Ser Gln Tyr
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Ala Ile	Ala Gly Thr Val Arg	Gly Leu Glu Ala Leu	Glu Ala Glu
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Val Glu	Arg Arg Arg Glu Leu	Thr Gly Gly Arg Arg	Ser Phe Ile
1430	1435	1440	
Leu Val	Pro Gly Ile Asp Val	Pro Phe His Ser Arg	Val Leu Arg
1445	1450	1455	
Val Gly	Val Ala Glu Phe Arg	Arg Ser Leu Asp Arg	Val Met Arg
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Pro Thr	Arg Thr Arg	Pro Asp	His Arg Ala Leu	His Ser Gln Pro
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Gly Ala	Ala Glu Val Gln	Pro Trp Thr Ala Thr	Ser Ser Arg Lys	
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Ser Gly	Ile Trp Cys Pro	Ala Glu Pro Leu Asp	Glu Ile Leu Ala	
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Asp Tyr	Asp Thr Trp Leu Arg	Asp Asp Arg Arg	Asp Gly Ala His	
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Gly Val	His Arg Ala Ala	Gly Met Ala Ile Arg	Gln Pro Gly Ala	
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Leu Asp	Arg Asp Ala Gly	Ser Ala Val His Arg	Gly Gly Ala Gly	
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Gly Leu	Gly Val Glu Arg	Phe Val Glu Ile Gly	Val Lys Ser Ser	
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Pro Thr	Val Ala Gly Ser	Cys His Gln His Pro	Gln Thr Ala Arg	
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Ile Arg	Pro Gln His Ser	Glu Val Leu Asn Ala	Glu Arg Asp Ala	
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Arg Cys	Cys Ser Pro Pro	Thr Pro Thr Arg Ser	Arg Ser Arg Arg	
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Lys Thr	Ser Arg Ser Arg	Asn Arg Pro Arg Arg	Thr Ser Ser Arg	
1625		1630	1635	
Lys Pro	Pro Pro Ser Arg	Arg Pro Leu Arg Arg	Arg Ala Arg Val	
1640		1645	1650	
Pro Thr	Ile Trp Phe Ser	Thr Pro Pro Met Pro	Arg Cys Val Ile	
1655		1660	1665	
Ala Leu	Ser Ala Lys Met	Arg Ile Asp Gln Ile	Glu Glu Leu Asp	
1670		1675	1680	
Ser Ile	Glu Ser Ile Thr	Asp Gly Ala Ser Ser	Arg Arg Asn Gln	
1685		1690	1695	

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Arg	Arg	Arg	Arg	Ile	Gly	Pro	Gly	Arg	Ser	Ala	Leu	Thr	Gly	Asp
1715						1720					1725			
Gln	Thr	Gly	Ala	His	Leu	Gln	Arg	Tyr	Gly	Pro	Val	Leu	Ser	Asp
1730						1735					1740			
Ala	Ile	Asn	Asp	His	Val	Arg	Thr	Val	Leu	Gly	Pro	Ser	Gly	Lys
1745						1750					1755			
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1760						1765					1770			
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1775						1780					1785			
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Leu	Ser	Glu	Phe	Thr	Asp	Gln	Ile	Thr	Gly	Arg	Glu	Gly	Val	Leu
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Pro	Ser	Thr	Val	Ala	Gly	Arg	Pro	Asp	Ser	Glu	Leu	Ile	Asp	Leu
1880						1885					1890			
Val	Thr	Ala	Glu	Leu	Gly	Arg	Thr	Gly	Arg	Gly	Trp	Trp	His	Arg
1895						1900					1905			
Cys	Ser	Thr	Pro	Arg	Arg	Pro	Ser	Tyr	Ser	Thr	Thr	Ala	Gly	Gln
1910						1915					1920			

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Arg 1940	Arg	Arg His	Arg Arg	Arg	Leu Ala	Ala Leu	Ala	Glu Arg	Phe	
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Glu 1955	Gly	Ala Ala	Thr Ser	Trp	Arg Pro	Arg Leu	Pro	Gly Gly	Lys	
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Val 1970	Ser	Arg Ser	Arg Gly	Pro	Ala Asp	Pro Cys	Ile	Ala Val	Arg	
				1975			1980			
Pro 1985	His	Ala Ala	Gly Ala	Glu	Asn Pro	Glu Pro	Arg	Val Arg	Arg	
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Arg 2000	Ser	Cys Arg	Gly Asp	Arg	Arg Phe	Glu Gly	Phe	Asp Arg	Arg	
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Val 2015	Gly	Gly Gly	Ser Ala	Ala	Arg Arg	Gly Ala	Thr	Val Ile	Ala	
				2020			2025			
Thr 2030	Thr	Ser Lys	Leu Asp	Glu	Glu Arg	Leu Arg	Phe	Tyr Arg	Thr	
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Leu 2045	Tyr	Arg Asp	His Ala	Arg	Tyr Gly	Ala Ala	Leu	Trp Leu	Val	
				2050			2055			
Ala 2060	Ala	Asn Met	Ala Ser	Tyr	Ser Asp	Val Asp	Ala	Leu Val	Glu	
				2065			2070			
Trp 2075	Ile	Gly Thr	Glu Gln	Thr	Glu Ser	Leu Gly	Pro	Gln Ser	Ile	
				2080			2085			
His 2090	Ile	Lys Asp	Ala Gln	Thr	Pro Thr	Leu Leu	Phe	Arg Ser	Arg	
				2095			2100			
Arg 2105	Thr	Arg Val	Gly Thr	Val	Gly Gly	Arg Phe	Ala	Arg Arg	Asp	
				2110			2115			
Gly 2120	Asp	Glu Ser	Ala Ala	Val	Ala Val	Gln Arg	Leu	Ile Gly	Gly	
				2125			2130			
Leu 2135	Ser	Thr Ile	Gly Ala	Glu	Arg Asp	Met Pro	Ser	Arg Leu	Glu	
				2140			2145			

Arg Gly 2150	Ala Ala Arg Leu Ala 2155	Gln Pro Trp His Val 2160	Arg Arg Arg
Arg Ala 2165	Leu Arg Arg Ser Gln 2170	Val Arg Ala Gly Cys 2175	Arg Gly Asp
Ala Leu 2180	Ala Arg Arg Val Val 2185	Leu Gly Gly Thr Gly 2190	Gln Pro Gly
Ala Arg 2195	Ala His Arg Leu Asp 2200	Pro Arg His Arg Ala 2205	Asp Gly Pro
Gln Arg 2210	Cys His Arg Gly Arg 2215	Arg Arg Arg Gly Arg 2220	Gly His His
Leu Leu 2225	Asp Arg Arg Asp Gly 2230	Ala Ala Ala Ala Arg 2235	Pro Val Ser
Cys Gly 2240	Ile Gln Gly Gly Cys 2245	Gly Arg Ser Pro Ile 2250	Lys Ala Asp
Leu Thr 2255	Gly Gly Leu Pro Arg 2260	Pro Thr Ser Thr Trp 2265	Pro Ser Trp
Arg Pro 2270	Arg Arg Ala Ser Arg 2275	Cys Arg Gln Arg Arg 2280	Pro Ser Thr
Arg Thr 2285	Pro Arg Pro Leu Ala 2290	Pro Ser Pro Arg Cys 2295	Arg Arg Arg
Pro Gly 2300	Phe Thr Pro Ala Pro 2305	Pro Pro Gln Trp Asp 2310	Asp Leu Asp
Val Asp 2315	Pro Ala Asp Leu Val 2320	Val Ile Val Gly Gly 2325	Arg Glu Ile
Gly Pro 2330	Tyr Gly Ser Ser Arg 2335	Thr Arg Phe Glu Met 2340	Glu Val Glu
Asn Glu 2345	Leu Ser Ala Ala Gly 2350	Val Leu Glu Leu Ala 2355	Trp Thr Thr
Gly Leu 2360	Ile Ala Gly Arg Arg 2365	Pro Ala Thr Arg Leu 2370	Val Arg His

Arg Ile 2375	Arg Arg Asn Gly Arg 2380	Arg Ile Arg Val Gly 2385	Ala Ala Leu
His Asp 2390	Ala Val Val Gln Arg 2395	Val Gly Ile Arg Glu 2400	Phe Val Asp
Asp Gly 2405	Ala Ile Asp Pro Asp 2410	His Ala Ser Pro Leu 2415	Leu Val Ser
Val Phe 2420	Leu Glu Lys Asp Phe 2425	Ala Phe Val Val Ser 2430	Ser Glu Ala
Asp Ala 2435	Arg Ala Phe Val Glu 2440	Phe Asp Pro Glu His 2445	Thr Val Ile
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Gly Thr 2465	Glu Ile Arg Val Pro 2470	Arg Lys Thr Lys Leu 2475	Ser Arg Val
Val Gly 2480	Gly Gln Ile Pro Thr 2485	Gly Phe Asp Pro Thr 2490	Val Trp Gly
Ile Ser 2495	Ala Asp Met Ala Gly 2500	Ser Ile Asp Arg Leu 2505	Ala Val Trp
Asn Met 2510	Trp Arg Thr Val Asp 2515	Arg Phe Leu Ser Ser 2520	Gly Phe Ser
Pro Ala 2525	Glu Val Met Arg Tyr 2530	Val His Pro Ser Leu 2535	Val Ala Asn
Thr Gln 2540	Gly Thr Gly Met Gly 2545	Gly Gly Thr Ser Met 2550	Gln Thr Met
Tyr His 2555	Gly Asn Leu Leu Gly 2560	Arg Asn Lys Pro Asn 2565	Asp Ile Phe
Gln Glu 2570	Val Leu Pro Ile Ser 2575	Phe Ala Ala His Val 2580	Val Gln Ser
Tyr Val 2585	Gly Ser Tyr Gly Ala 2590	Met Ile His Pro Val 2595	Ala Ala Cys

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Leu Glu Gly Ile Ile Gly Phe Gly Asp Met Ala Ala Thr Ala Asp
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Thr Ser Met Met Arg Gly Arg Gly Ile His Asp Ser Lys Phe Ser
2645 2650 2655

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Ala Ala Gly Ala Gly Gly Gly Gly Phe Ala Gln Ser Phe Gly Asp
2690 2695 2700

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Gly Ala Arg Arg Gln Gly Phe Ser Cys Gly Gly Arg Trp Pro Ser
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Cys Val Ala Ala Asp Asp Val Ala Val Ile Ser Lys His Asp Thr
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Ser Thr Leu Ala Asn Asp Pro Asn Glu Thr Glu Leu His Glu Arg
2750 2755 2760

Leu Ala Asp Ala Leu Gly Arg Ser Glu Gly Ala Pro Leu Phe Val
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 Val Ala Asp Phe Gly Leu Ser Arg Leu Met Thr Gly Asp Thr Tyr Thr
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 Ala His Ala Gly Ala Lys Phe Pro Ile Lys Trp Thr Ala Pro Glu Ser
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 Gly Phe Leu Leu Ala Leu Leu Pro Pro Gly Ile Ala Gly Thr Gln Val
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 Cys Thr Gly Thr Asp Met Lys Leu Arg Leu Pro Ala Ser Pro Glu Thr
 30 35 40
 cac ctg gac atg ctc cgc cac ctg tac cag ggc tgt cag gta gtg cag 196
 His Leu Asp Met Leu Arg His Leu Tyr Gln Gly Cys Gln Val Val Gln
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 ggc aac ttg gag ctt acc tac gtg cct gcc aat gcc agc ctc tca ttc 244
 Gly Asn Leu Glu Leu Thr Tyr Val Pro Ala Asn Ala Ser Leu Ser Phe
 65 70 75

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Leu Gln Asp Ile Gln Glu Val Gln Gly Tyr Met Leu Ile Ala His Asn	
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Gln Val Lys Arg Val Pro Leu Gln Arg Leu Arg Ile Val Arg Gly Thr	
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cag ctc ttt gag gac aag tat gcc ctg gct gtg cta gac aac cga gat	388
Gln Leu Phe Glu Asp Lys Tyr Ala Leu Ala Val Leu Asp Asn Arg Asp	
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Pro Gln Asp Asn Val Ala Ala Ser Thr Pro Gly Arg Thr Pro Glu Gly	
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Leu Arg Glu Leu Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly Gly	
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Val Leu Ile Arg Gly Asn Pro Gln Leu Cys Tyr Gln Asp Met Val Leu	
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Trp Lys Asp Val Phe Arg Lys Asn Asn Gln Leu Ala Pro Val Asp Ile	
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gac acc aat cgt tcc cgg gcc tgt cca cct tgt gcc ccc gcc tgc aaa	628
Asp Thr Asn Arg Ser Arg Ala Cys Pro Pro Cys Ala Pro Ala Cys Lys	
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Asp Asn His Cys Trp Gly Glu Ser Pro Glu Asp Cys Gln Ile Leu Thr	
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ggc acc atc tgt acc agt ggt tgt gcc cgg tgc aag ggc cgg ctg ccc	724
Gly Thr Ile Cys Thr Ser Gly Cys Ala Arg Cys Lys Gly Arg Leu Pro	
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act gac tgc tgc cat gag cag tgt gcc gca ggc tgc acg ggc ccc aag	772
Thr Asp Cys Cys His Glu Gln Cys Ala Ala Gly Cys Thr Gly Pro Lys	
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His Ser Asp Cys Leu Ala Cys Leu His Phe Asn His Ser Gly Ile Cys	
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Glu Leu His Cys Pro Ala Leu Val Thr Tyr Asn Thr Asp Thr Phe Glu	
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Ser Met His Asn Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser Cys Val	
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Thr Thr Cys Pro Tyr Asn Tyr Leu Ser Thr Glu Val Gly Ser Cys Thr	
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Gln Arg Cys Glu Lys Cys Ser Lys Pro Cys Ala Arg Val Cys Tyr Gly	
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Ser Leu Arg Glu Leu Gly Ser Gly Leu Ala Leu Ile His Arg Asn Ala	
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His Leu Cys Phe Val His Thr Val Pro Trp Asp Gln Leu Phe Arg Asn	
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Pro His Gln Ala Leu Leu His Ser Gly Asn Arg Pro Glu Glu Asp Leu	
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Cys Val Ser Ser Gly Leu Val Cys Asn Ser Leu Cys Ala His Gly His	
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Cys Ala Ala Cys Ala His Tyr Lys Asp Ser Ser Ser Cys Val Ala Arg	
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Cys Pro Ser Gly Val Lys Pro Asp Leu Ser Tyr Met Pro Ile Trp Lys	
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Tyr Pro Asp Glu Glu Gly Ile Cys Gln Pro Cys Pro Ile Asn Cys Thr	
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Ala Ser Pro Val Thr Phe Ile Ile Ala Thr Val Glu Gly Val Leu Leu	
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Phe Leu Ile Leu Val Val Val Val Gly Ile Leu Ile Lys Arg Arg Arg	
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Pro Asn His Val Lys Ile Thr Asp Phe Gly Leu Ala Arg Leu Leu Asp	
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Ile Asp Glu Thr Glu Tyr His Ala Asp Gly Gly Lys Val Pro Ile Lys	
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Val	Val	Lys	Asp	Val	Phe	Ala	Phe	Gly	Gly	Ala	Val	Glu	Asn	Pro	
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Glu	Tyr	Leu	Val	Pro	Arg	Glu	Gly	Thr	Ala	Ser	Pro	Pro	His	Pro	
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Ser	Pro	Ala	Phe	Ser	Pro	Ala	Phe	Asp	Asn	Leu	Tyr	Tyr	Trp	Asp	
1215					1220					1225					
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Gln	Asn	Ser	Ser	Glu	Gln	Gly	Pro	Pro	Pro	Ser	Asn	Phe	Glu	Gly	
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Thr	Pro	Thr	Ala	Glu	Asn	Pro	Glu	Tyr	Leu	Gly	Leu	Asp	Val	Pro	
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 Val
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Leu Arg His Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu
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Leu Thr Tyr Val Pro Ala Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile
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Gln Glu Val Gln Gly Tyr Met Leu Ile Ala His Asn Gln Val Lys Arg
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Val Pro Leu Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu
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Asp Lys Tyr Ala Leu Ala Val Leu Asp Asn Arg Asp Pro Gln Asp Asn
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Val Ala Ala Ser Thr Pro Gly Arg Thr Pro Glu Gly Leu Arg Glu Leu
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Gln Leu Arg Ser Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Arg
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Gly Asn Pro Gln Leu Cys Tyr Gln Asp Met Val Leu Trp Lys Asp Val
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Phe Arg Lys Asn Asn Gln Leu Ala Pro Val Asp Ile Asp Thr Asn Arg
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Ser Arg Ala Cys Pro Pro Cys Ala Pro Ala Cys Lys Asp Asn His Cys

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His Glu Gln Cys Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys 245 250 255		
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Pro Glu Gly Arg Tyr Thr Phe Gly Ala Ser Cys Val Thr Thr Cys Pro 290 295 300		
Tyr Asn Tyr Leu Ser Thr Glu Val Gly Ser Cys Thr Leu Val Cys Pro 305 310 315 320		
Pro Asn Asn Gln Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu 325 330 335		
Lys Cys Ser Lys Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu 340 345 350		
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Asp Gly Cys Lys Lys Ile Phe Gly Ser Leu Ala Phe Leu Pro Glu Ser 370 375 380		
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Leu Gln Val Phe Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile 405 410 415		
Ser Ala Trp Pro Asp Ser Leu Arg Asp Leu Ser Val Phe Gln Asn Leu 420 425 430		
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435

440

445

Leu Gln Gly Leu Gly Ile His Ser Leu Gly Leu Arg Ser Leu Arg Glu
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Leu Gly Ser Gly Leu Ala Leu Ile His Arg Asn Ala His Leu Cys Phe
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Val His Thr Val Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala
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Val Val Val Val Gly Ile Leu Ile Lys Arg Arg Arg Gln Lys Ile Arg

675

680

685

Lys Tyr Thr Met Arg Arg Leu Leu Gln Glu Thr Glu Leu Val Glu Pro
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725 730 735

Gly Thr Val Tyr Lys Gly Ile Trp Ile Pro Asp Gly Glu Asn Val Lys
740 745 750

Ile Pro Val Ala Ile Lys Val Leu Arg Glu Asn Thr Ser Pro Lys Ala
755 760 765

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Glu Tyr His Ala Asp Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu
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Glu Ser Ile Leu Arg Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser
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Tyr Gly Val Thr Val Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr

915

920

925

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Leu Val Ser Glu Phe Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val
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Val Ile Gln Asn Glu Asp Leu Gly Pro Ser Ser Pro Met Asp Ser Thr
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Thr Asp Gly Tyr Val Ala Pro Leu Ala Cys Ser Pro Gln Pro Glu
 1130 1135 1140

Tyr Val Asn Gln Ser Glu Val Gln Pro Gln Pro Pro Leu Thr Pro



1



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Ser	Asn	Asn	Tyr	Ile	Val	Gly	Asn	Lys	Pro	Pro	Lys	Glu	Cys	Gly	Asp		
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Leu	Cys	Pro	Gly	Thr	Met	Glu	Glu	Lys	Pro	Met	Cys	Glu	Lys	Thr	Thr		
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Ile	Asn	Asn	Glu	Tyr	Asn	Tyr	Arg	Cys	Trp	Thr	Thr	Asn	Arg	Cys	Gln		
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Lys	Met	Cys	Pro	Ser	Thr	Cys	Gly	Lys	Arg	Ala	Cys	Thr	Glu	Asn	Asn		
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Glu	Cys	Cys	His	Pro	Glu	Cys	Leu	Gly	Ser	Cys	Ser	Ala	Pro	Asp	Asn		
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Asp	Thr	Ala	Cys	Val	Ala	Cys	Arg	His	Tyr	Tyr	Tyr	Ala	Gly	Val	Cys		
245					250					255				260			
gtg	cct	gcc	tgc	ccg	ccc	aac	acc	tac	agg	ttt	gag	ggc	tgg	cgc	tgt		873
Val	Pro	Ala	Cys	Pro	Pro	Asn	Thr	Tyr	Arg	Phe	Glu	Gly	Trp	Arg	Cys		
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gtg	gac	cgt	gac	ttc	tgc	gcc	aac	atc	ctc	agc	gcc	gag	agc	agc	gac		921
Val	Asp	Arg	Asp	Phe	Cys	Ala	Asn	Ile	Leu	Ser	Ala	Glu	Ser	Ser	Asp		
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Ser	Glu	Gly	Phe	Val	Ile	His	Asp	Gly	Glu	Cys	Met	Gln	Glu	Cys	Pro		
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tgc	ggc	ttc	atc	cgc	aac	ggc	agc	cag	agc	atg	tac	tgc	atc	cct	tgt		1017
Ser	Gly	Phe	Ile	Arg	Asn	Gly	Ser	Gln	Ser	Met	Tyr	Cys	Ile	Pro	Cys		
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Tyr	Val	Leu	Asp	Asn 425	Gln	Asn	Leu	Gln	Gln 430	Leu	Trp	Asp	Trp	Asp 435	His	
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Arg	Asn	Leu 440	Thr	Ile	Lys	Ala	Gly	Lys 445	Met	Tyr	Phe	Ala	Phe	Asn	Pro 450	
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Lys	Leu 455	Cys	Val	Ser	Glu	Ile	Tyr 460	Arg	Met	Glu	Glu	Val 465	Thr	Gly	Thr	
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Lys 470	Gly	Arg	Gln	Ser	Lys 475	Gly	Asp	Ile	Asn	Thr	Arg 480	Asn	Asn	Gly	Glu	
aga	gcc	tcc	tgt	gaa	agt	gac	gtc	ctg	cat	ttc	acc	tcc	acc	acc	acg	1545
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Tyr	Arg	Asp	Leu 520	Ile	Ser	Phe	Thr	Val 525	Tyr	Tyr	Lys	Glu	Ala	Pro	Phe 530	
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Lys	Asn	Val 535	Thr	Glu	Tyr	Asp	Gly 540	Gln	Asp	Ala	Cys	Gly 545	Ser	Asn	Ser	
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Trp	Asn	Met	Val	Asp	Val 555	Asp	Leu	Pro	Pro	Asn	Lys 560	Asp	Val	Glu	Pro	
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Gly 565	Ile	Leu	Leu	His	Gly 570	Leu	Lys	Pro	Trp	Thr 575	Gln	Tyr	Ala	Val	Tyr 580		
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Val	Lys	Ala	Val	Thr	Leu	Thr	Met	Val	Glu	Asn	Asp	His	Ile	Arg	Gly		
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Ala	Lys	Ser	Glu	Ile	Leu	Tyr	Ile	Arg	Thr	Asn	Ala	Ser	Val	Pro	Ser		
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Ile	Pro	Leu	Asp	Val	Leu	Ser	Ala	Ser	Asn	Ser	Ser	Ser	Gln	Leu	Ile		
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Thr	Ile	Asp	Ile	Glu	Glu	Val	Thr	Glu	Asn	Pro	Lys	Thr	Glu	Val	Cys		
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Gly	Gly	Glu	Lys	Gly	Pro	Cys	Cys	Ala	Cys	Pro	Lys	Thr	Glu	Ala	Glu		
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Lys	Gln	Ala	Glu	Lys	Glu	Glu	Ala	Glu	Tyr	Arg	Lys	Val	Phe	Glu	Asn		
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Phe	Leu	His	Asn	Ser	Ile	Phe	Val	Pro	Arg	Pro	Glu	Arg	Lys	Arg	Arg		
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Val Phe Ala Arg Thr Met Pro Ala Glu Gly Ala Asp Asp Ile Pro Gly	
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Pro Val Thr Trp Glu Pro Arg Pro Glu Asn Ser Ile Phe Leu Lys Trp	
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Pro Glu Pro Glu Asn Pro Asn Gly Leu Ile Leu Met Tyr Glu Ile Lys	
855 860 865	
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Tyr Arg Lys Tyr Gly Gly Ala Lys Leu Asn Arg Leu Asn Pro Gly Asn	
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Gly Gln Pro Thr	Leu Val Ile Met Glu	Leu Met Thr Arg Gly Asp	
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Leu Lys Ser Tyr	Leu Arg Ser Leu Arg	Pro Glu Met Glu Asn Asn	
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cca gtc cta gca	cct cca agc ctg agc	aag atg att cag atg gcc	3393
Pro Val Leu Ala	Pro Pro Ser Leu Ser	Lys Met Ile Gln Met Ala	
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Gly Glu Ile Ala	Asp Gly Met Ala Tyr	Leu Asn Ala Asn Lys Phe	
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Val His Arg Asp	Leu Ala Ala Arg Asn	Cys Met Val Ala Glu Asp	
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Glu Thr Asp Tyr	Tyr Arg Lys Gly Gly	Lys Gly Leu Leu Pro Val	
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Cys Pro Asp Met	Leu Phe Glu Leu Met	Arg Met Cys Trp Gln Tyr	
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20 25 30

Cys Gly Pro Gly Ile Asp Ile Arg Asn Asp Tyr Gln Gln Leu Lys Arg
35 40 45

Leu Glu Asn Cys Thr Val Ile Glu Gly Tyr Leu His Ile Leu Leu Ile
50 55 60

Ser Lys Ala Glu Asp Tyr Arg Ser Tyr Arg Phe Pro Lys Leu Thr Val
65 70 75 80

Ile Thr Glu Tyr Leu Leu Leu Phe Arg Val Ala Gly Leu Glu Ser Leu
85 90 95

Gly Asp Leu Phe Pro Asn Leu Thr Val Ile Arg Gly Trp Lys Leu Phe
100 105 110

Tyr Asn Tyr Ala Leu Val Ile Phe Glu Met Thr Asn Leu Lys Asp Ile
115 120 125

Gly Leu Tyr Asn Leu Arg Asn Ile Thr Arg Gly Ala Ile Arg Ile Glu
130 135 140

Lys Asn Ala Asp Leu Cys Tyr Leu Ser Thr Val Asp Trp Ser Leu Ile
145 150 155 160

Leu Asp Ala Val Ser Asn Asn Tyr Ile Val Gly Asn Lys Pro Pro Lys
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Glu Cys Gly Asp Leu Cys Pro Gly Thr Met Glu Glu Lys Pro Met Cys
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Glu Lys Thr Thr Ile Asn Asn Glu Tyr Asn Tyr Arg Cys Trp Thr Thr
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Asn Arg Cys Gln Lys Met Cys Pro Ser Thr Cys Gly Lys Arg Ala Cys
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Thr Glu Asn Asn Glu Cys Cys His Pro Glu Cys Leu Gly Ser Cys Ser
225 230 235 240

Ala Pro Asp Asn Asp Thr Ala Cys Val Ala Cys Arg His Tyr Tyr Tyr
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Ala Gly Val Cys Val Pro Ala Cys Pro Pro Asn Thr Tyr Arg Phe Glu
260 265 270

Gly Trp Arg Cys Val Asp Arg Asp Phe Cys Ala Asn Ile Leu Ser Ala
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Glu Ser Ser Asp Ser Glu Gly Phe Val Ile His Asp Gly Glu Cys Met
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Gln Glu Cys Pro Ser Gly Phe Ile Arg Asn Gly Ser Gln Ser Met Tyr
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Cys Ile Pro Cys Glu Gly Pro Cys Pro Lys Val Cys Glu Glu Glu Lys
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Lys Thr Lys Thr Ile Asp Ser Val Thr Ser Ala Gln Met Leu Gln Gly
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Cys Thr Ile Phe Lys Gly Asn Leu Leu Ile Asn Ile Arg Arg Gly Asn
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Asn Ile Ala Ser Glu Leu Glu Asn Phe Met Gly Leu Ile Glu Val Val
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Thr Gly Tyr Val Lys Ile Arg His Ser His Ala Leu Val Ser Leu Ser
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Phe Leu Lys Asn Leu Arg Leu Ile Leu Gly Glu Glu Gln Leu Glu Gly
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Asn Tyr Ser Phe Tyr Val Leu Asp Asn Gln Asn Leu Gln Gln Leu Trp
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Asp Trp Asp His Arg Asn Leu Thr Ile Lys Ala Gly Lys Met Tyr Phe
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Ala Phe Asn Pro Lys Leu Cys Val Ser Glu Ile Tyr Arg Met Glu Glu
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Val Thr Gly Thr Lys Gly Arg Gln Ser Lys Gly Asp Ile Asn Thr Arg
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Asn Asn Gly Glu Arg Ala Ser Cys Glu Ser Asp Val Leu His Phe Thr
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Ser Thr Thr Thr Ser Lys Asn Arg Ile Ile Ile Thr Trp His Arg Tyr
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Arg Pro Pro Asp Tyr Arg Asp Leu Ile Ser Phe Thr Val Tyr Tyr Lys
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Glu Ala Pro Phe Lys Asn Val Thr Glu Tyr Asp Gly Gln Asp Ala Cys
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Gly Ser Asn Ser Trp Asn Met Val Asp Val Asp Leu Pro Pro Asn Lys
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Asp Val Glu Pro Gly Ile Leu Leu His Gly Leu Lys Pro Trp Thr Gln
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Tyr Ala Val Tyr Val Lys Ala Val Thr Leu Thr Met Val Glu Asn Asp
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His Ile Arg Gly Ala Lys Ser Glu Ile Leu Tyr Ile Arg Thr Asn Ala
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Ser Val Pro Ser Ile Pro Leu Asp Val Leu Ser Ala Ser Asn Ser Ser
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Ser Gln Leu Ile Val Lys Trp Asn Pro Pro Ser Leu Pro Asn Gly Asn
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660 665 670

Tyr Ala Asp Gly Thr Ile Asp Ile Glu Glu Val Thr Glu Asn Pro Lys
675 680 685

Thr Glu Val Cys Gly Gly Glu Lys Gly Pro Cys Cys Ala Cys Pro Lys
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Thr Glu Ala Glu Lys Gln Ala Glu Lys Glu Glu Ala Glu Tyr Arg Lys
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Arg Lys Arg Arg Asp Val Met Gln Val Ala Asn Thr Thr Met Ser Ser
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Glu Glu Leu Glu Thr Glu Tyr Pro Phe Phe Glu Ser Arg Val Asp Asn
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Lys Glu Arg Thr Val Ile Ser Asn Leu Arg Pro Phe Thr Leu Tyr Arg
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Ile Asp Ile His Ser Cys Asn His Glu Ala Glu Lys Leu Gly Cys Ser
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Ala Ser Asn Phe Val Phe Ala Arg Thr Met Pro Ala Glu Gly Ala Asp
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Asp Ile Pro Gly Pro Val Thr Trp Glu Pro Arg Pro Glu Asn Ser Ile
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Phe Leu Lys Trp Pro Glu Pro Glu Asn Pro Asn Gly Leu Ile Leu Met
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Ser Arg Gln Glu Tyr Arg Lys Tyr Gly Gly Ala Lys Leu Asn Arg Leu
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Asn Pro Gly Asn Tyr Thr Ala Arg Ile Gln Ala Thr Ser Leu Ser Gly
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Gly Tyr Glu Asn Phe Ile His Leu Ile Ile Ala Leu Pro Val Ala Val
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Leu Leu Ile Val Gly Gly Leu Val Ile Met Leu Tyr Val Phe His Arg
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Gln Met Ala Gly Glu Ile Ala Asp Gly Met Ala Tyr Leu Asn Ala
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Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr Leu Val Asp			
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Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp Glu Gly Leu			
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Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln Ile Met Arg			
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Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser Phe Leu Gln			
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His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu			
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Asn Pro Cys Gly Pro Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln			
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Asp Pro Gln Thr Cys Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys			
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Glu Cys Arg Pro Lys Lys Asp Arg Ala Arg Gln Glu Asn Pro Cys Gly
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Ser Tyr Gln Ser Asp Leu Lys Glu Glu Lys Asp Ile Asn Asn Asn Val
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Lys Lys Thr Pro Cys Ala Val Leu Ser Pro Thr Ile Gln Asp Asp Pro
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Asn	Val	Pro	Glu	Ser	Leu	Asp	Lys	Leu	His	Val	Thr	Ser	Thr	Arg	Pro	
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Gln	Tyr	Val	Arg	Ile	Lys	Asn	Trp	Gly	Ser	Gly	Glu	Ile	Leu	His	Asp	
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Thr	Leu	His	His	Lys	Ala	Thr	Ser	Asp	Phe	Thr	Cys	Lys	Ser	Lys	Ser	
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Cys	Leu	Gly	Ser	Ile	Met	Asn	Pro	Lys	Ser	Leu	Thr	Arg	Gly	Pro	Arg	
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Tyr	Gln	Leu	Thr	Leu	Asp	Glu	Leu	Ile	Phe	Ala	Thr	Lys	Met	Ala	Trp	
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Arg	Asn	Ala	Pro	Arg	Cys	Ile	Gly	Arg	Ile	Gln	Trp	Ser	Asn	Leu	Gln	
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Val	Phe	Asp	Ala	Arg	Asn	Cys	Ser	Thr	Ala	Gln	Glu	Met	Phe	Gln	His	
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Ile	Cys	Arg	His	Ile	Leu	Tyr	Ala	Thr	Asn	Asn	Gly	Asn	Ile	Arg	Ser	
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Ala	Ile	Thr	Val	Phe	Pro	Gln	Arg	Ser	Asp	Gly	Lys	His	Asp	Phe	Arg	
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Leu	Trp	Asn	Ser	Gln	Leu	Ile	Arg	Tyr	Ala	Gly	Tyr	Gln	Met	Pro	Asp	
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Pro Asp Leu Val Leu Glu Val Thr Met Glu His Pro Lys Tyr Glu Trp	
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Phe Gln Glu Leu Gly Leu Lys Trp Tyr Ala Leu Pro Ala Val Ala Asn	
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Gln Arg Tyr Asn Ile Leu Glu Glu Val Gly Arg Arg Met Gly Leu Glu	
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Thr His Thr Leu Ala Ser Leu Trp Lys Asp Arg Ala Val Thr Glu Ile	
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Cys Tyr Thr Met Asp Pro Ser Val Arg Trp Glu Tyr Cys Asn Leu Thr	
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Gln Cys Pro Val Met Glu Ser Thr Leu Leu Thr Thr Pro Thr Val Val	
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Pro Val Pro Ser Thr Glu Leu Pro Ser Glu Glu Ala Pro Thr Glu Asn	
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Ser Met Thr Pro His Trp His Arg Arg Ile Pro Leu Tyr Tyr Pro Asn	
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Leu Thr Arg Cys Pro Val Thr Glu Ser Ser Val Leu Thr Thr Pro Thr	
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Cys Tyr Thr Met Asn Pro Arg Lys Leu Phe Asp Tyr Cys Asp Ile Pro	
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		540			545					550					555		
gat	aag	cga	ctg	gct	gcc	tat	ctt	atg	ttg	atg	agg	agt	cct	tca	cag		1791
Asp	Lys	Arg	Leu	Ala	Ala	Tyr	Leu	Met	Leu	Met	Arg	Ser	Pro	Ser	Gln		
				560				565						570			
gca	gat	att	aac	aaa	att	gtc	caa	att	cta	cca	tgg	gaa	cag	aat	gag		1839
Ala	Asp	Ile	Asn	Lys	Ile	Val	Gln	Ile	Leu	Pro	Trp	Glu	Gln	Asn	Glu		
			575				580						585				
caa	gtg	aag	aac	ttt	gtg	gct	tcc	cat	att	gcc	aat	atc	ttg	aac	tca		1887

Gln	Val	Lys	Asn	Phe	Val	Ala	Ser	His	Ile	Ala	Asn	Ile	Leu	Asn	Ser		
	590						595					600					
gaa	gaa	ttg	gat	atc	caa	gat	ctg	aaa	aag	tta	gtg	aaa	gaa	gtt	ctg	1935	
Glu	Glu	Leu	Asp	Ile	Gln	Asp	Leu	Lys	Lys	Leu	Val	Lys	Glu	Val	Leu		
	605					610					615						
aaa	gaa	tct	caa	ctt	cca	act	gtc	atg	gac	ttc	aga	aaa	ttc	tct	cgg	1983	
Lys	Glu	Ser	Gln	Leu	Pro	Thr	Val	Met	Asp	Phe	Arg	Lys	Phe	Ser	Arg		
	620				625					630					635		
aac	tat	caa	ctc	tac	aaa	tct	gtt	tct	att	cca	tca	ctt	gac	cca	gcc	2031	
Asn	Tyr	Gln	Leu	Tyr	Lys	Ser	Val	Ser	Ile	Pro	Ser	Leu	Asp	Pro	Ala		
				640					645						650		
tca	gcc	aaa	ata	gaa	ggg	aat	ctt	ata	ttt	gat	cca	aat	aac	tac	ctt	2079	
Ser	Ala	Lys	Ile	Glu	Gly	Asn	Leu	Ile	Phe	Asp	Pro	Asn	Asn	Tyr	Leu		
				655				660						665			
cct	aaa	gaa	agc	atg	ctg	aaa	act	acc	ctc	act	gcc	ttt	gga	ttt	gct	2127	
Pro	Lys	Glu	Ser	Met	Leu	Lys	Thr	Thr	Leu	Thr	Ala	Phe	Gly	Phe	Ala		
		670					675					680					
tca	gct	gac	ctc	atc	gag	att	ggc	ttg	gaa	gga	aaa	ggc	ttt	gag	cca	2175	
Ser	Ala	Asp	Leu	Ile	Glu	Ile	Gly	Leu	Glu	Gly	Lys	Gly	Phe	Glu	Pro		
	685					690					695						
aca	ttg	gaa	gct	ctt	ttt	ggg	aag	caa	gga	ttt	ttc	cca	gac	agt	gtc	2223	
Thr	Leu	Glu	Ala	Leu	Phe	Gly	Lys	Gln	Gly	Phe	Phe	Pro	Asp	Ser	Val		
	700				705				710						715		
aac	aaa	gct	ttg	tac	tgg	gtt	aat	ggc	caa	gtt	cct	gat	ggc	gtc	tct	2271	
Asn	Lys	Ala	Leu	Tyr	Trp	Val	Asn	Gly	Gln	Val	Pro	Asp	Gly	Val	Ser		
				720				725						730			
aag	gtc	tta	gtg	gac	cac	ttt	ggc	tat	acc	aaa	gat	gat	aaa	cat	gag	2319	
Lys	Val	Leu	Val	Asp	His	Phe	Gly	Tyr	Thr	Lys	Asp	Asp	Lys	His	Glu		
				735				740					745				
cag	gat	atg	gta	aat	gga	ata	atg	ctc	agt	gtt	gag	aag	ctg	att	aaa	2367	
Gln	Asp	Met	Val	Asn	Gly	Ile	Met	Leu	Ser	Val	Glu	Lys	Leu	Ile	Lys		
		750				755						760					
gat	ttg	aaa	tcc	aaa	gaa	gtc	ccg	gaa	gcc	aga	gcc	tac	ctc	cgc	atc	2415	
Asp	Leu	Lys	Ser	Lys	Glu	Val	Pro	Glu	Ala	Arg	Ala	Tyr	Leu	Arg	Ile		
	765					770					775						
ttg	gga	gag	gag	ctt	ggc	ttt	gcc	agt	ctc	cat	gac	ctc	cag	ctc	ctg	2463	
Leu	Gly	Glu	Glu	Leu	Gly	Phe	Ala	Ser	Leu	His	Asp	Leu	Gln	Leu	Leu		
	780				785					790					795		
gga	aag	ctg	ctt	ctg	atg	ggc	gcc	cgc	act	ctg	cag	ggg	atc	ccc	cag	2511	
Gly	Lys	Leu	Leu	Leu	Met	Gly	Ala	Arg	Thr	Leu	Gln	Gly	Ile	Pro	Gln		
				800				805						810			
atg	att	gga	gag	gtc	atc	agg	aag	ggc	tca	aag	aat	gac	ttt	ttt	ctt	2559	
Met	Ile	Gly	Glu	Val	Ile	Arg	Lys	Gly	Ser	Lys	Asn	Asp	Phe	Phe	Leu		
			815					820					825				
cac	tac	atc	ttc	atg	gag	aat	gcc	ttt	gaa	ctc	ccc	act	gga	gct	gga	2607	

His Tyr Ile Phe Met Glu Asn Ala Phe Glu Leu Pro Thr Gly Ala Gly	
830	835 840
tta cag ttg caa ata tct tca tct gga gtc att gct ccc gga gcc aag	2655
Leu Gln Leu Gln Ile Ser Ser Ser Gly Val Ile Ala Pro Gly Ala Lys	
845	850 855
gct gga gta aaa ctg gaa gta gcc aac atg cag gct gaa ctg gtg gca	2703
Ala Gly Val Lys Leu Glu Val Ala Asn Met Gln Ala Glu Leu Val Ala	
860	865 870 875
aaa ccc tcc gtg tct gtg gag ttt gtg aca aat atg ggc atc atc att	2751
Lys Pro Ser Val Ser Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile	
	880 885 890
ccg gac ttc gct agg agt ggg gtc cag atg aac acc aac ttc ttc cac	2799
Pro Asp Phe Ala Arg Ser Gly Val Gln Met Asn Thr Asn Phe Phe His	
	895 900 905
gag tcg ggt ctg gag gct cat gtt gcc cta aaa cct ggg aag ctg aag	2847
Glu Ser Gly Leu Glu Ala His Val Ala Leu Lys Pro Gly Lys Leu Lys	
	910 915 920
ttt atc att cct tcc cca aag aga cca gtc aag ctg ctc agt gga ggc	2895
Phe Ile Ile Pro Ser Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly	
	925 930 935
aac aca tta cat ttg gtc tct acc acc aaa acg gag gtg atc cca cct	2943
Asn Thr Leu His Leu Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro	
	940 945 950 955
ctc att gag aac agg cag tcc tgg tca gtt tgc aag caa gtc ttt cct	2991
Leu Ile Glu Asn Arg Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro	
	960 965 970
ggc ctg aat tac tgc acc tca ggc gct tac tcc aac gcc agc tcc aca	3039
Gly Leu Asn Tyr Cys Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr	
	975 980 985
gac tcc gcc tcc tac tat ccg ctg acc ggg gac acc aga tta gag ctg	3087
Asp Ser Ala Ser Tyr Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu	
	990 995 1000
gaa ctg agg cct aca gga gag att gag cag tat tct gtc agc gca	3132
Glu Leu Arg Pro Thr Gly Glu Ile Glu Gln Tyr Ser Val Ser Ala	
	1005 1010 1015
acc tat gag ctc cag aga gag gac aga gcc ttg gtg gat acc ctg	3177
Thr Tyr Glu Leu Gln Arg Glu Asp Arg Ala Leu Val Asp Thr Leu	
	1020 1025 1030
aag ttt gta act caa gca gaa ggt gcg aag cag act gag gct acc	3222
Lys Phe Val Thr Gln Ala Glu Gly Ala Lys Gln Thr Glu Ala Thr	
	1035 1040 1045
atg aca ttc aaa tat aat cgg cag agt atg acc ttg tcc agt gaa	3267
Met Thr Phe Lys Tyr Asn Arg Gln Ser Met Thr Ser Ser Glu	
	1050 1055 1060
gtc caa att ccg gat ttt gat gtt gac ctc gga aca atc ctc aga	3312

Val Gln	Ile Pro Asp Phe Asp	Val Asp Leu Gly Thr	Ile Leu Arg	
1065	1070	1075		
gtt aat	gat gaa tct act gag	ggc aaa acg tct tac	aga ctc acc	3357
Val Asn	Asp Glu Ser Thr Glu	Gly Lys Thr Ser Tyr	Arg Leu Thr	
1080	1085	1090		
ctg gac	att cag aac aag aaa	att act gag gtc gcc	ctc atg ggc	3402
Leu Asp	Ile Gln Asn Lys Lys	Ile Thr Glu Val Ala	Leu Met Gly	
1095	1100	1105		
cac cta	agt tgt gac aca aag	gaa gaa aga aaa atc	aag ggt gtt	3447
His Leu	Ser Cys Asp Thr Lys	Glu Glu Arg Lys Ile	Lys Gly Val	
1110	1115	1120		
att tcc	ata ccc cgt ttg caa	gca gaa gcc aga agt	gag atc ctc	3492
Ile Ser	Ile Pro Arg Leu Gln	Ala Glu Ala Arg Ser	Glu Ile Leu	
1125	1130	1135		
gcc cac	tgg tcg cct gcc aaa	ctg ctt ctc caa atg	gac tca tct	3537
Ala His	Trp Ser Pro Ala Lys	Leu Leu Leu Gln Met	Asp Ser Ser	
1140	1145	1150		
gct aca	gct tat ggc tcc aca	gtt tcc aag agg gtg	gca tgg cat	3582
Ala Thr	Ala Tyr Gly Ser Thr	Val Ser Lys Arg Val	Ala Trp His	
1155	1160	1165		
tat gat	gaa gag aag att gaa	ttt gaa tgg aac aca	ggc acc aat	3627
Tyr Asp	Glu Glu Lys Ile Glu	Phe Glu Trp Asn Thr	Gly Thr Asn	
1170	1175	1180		
gta gat	acc aaa aaa atg act	tcc aat ttc cct gtg	gat ctc tcc	3672
Val Asp	Thr Lys Lys Met Thr	Ser Asn Phe Pro Val	Asp Leu Ser	
1185	1190	1195		
gat tat	cct aag agc ttg cat	atg tat gct aat aga	ctc ctg gat	3717
Asp Tyr	Pro Lys Ser Leu His	Met Tyr Ala Asn Arg	Leu Leu Asp	
1200	1205	1210		
cac aga	gtc cct caa aca gac	atg act ttc cgg cac	gtg ggt tcc	3762
His Arg	Val Pro Gln Thr Asp	Met Thr Phe Arg His	Val Gly Ser	
1215	1220	1225		
aaa tta	ata gtt gca atg agc	tca tgg ctt cag aag	gca tct ggg	3807
Lys Leu	Ile Val Ala Met Ser	Ser Trp Leu Gln Lys	Ala Ser Gly	
1230	1235	1240		
agt ctt	cct tat acc cag act	ttg caa gac cac ctc	aat agc ctg	3852
Ser Leu	Pro Tyr Thr Gln Thr	Leu Gln Asp His Leu	Asn Ser Leu	
1245	1250	1255		
aag gag	ttc aac ctc cag aac	atg gga ttg cca gac	ttc cac atc	3897
Lys Glu	Phe Asn Leu Gln Asn	Met Gly Leu Pro Asp	Phe His Ile	
1260	1265	1270		
cca gaa	aac ctc ttc tta aaa	agc gat ggc cgg gtc	aaa tat acc	3942
Pro Glu	Asn Leu Phe Leu Lys	Ser Asp Gly Arg Val	Lys Tyr Thr	
1275	1280	1285		
ttg aac	aag aac agt ttg aaa	att gag att cct ttg	cct ttt ggt	3987

Leu Asn 1290	Lys Asn Ser Leu 1295	Ile Glu Ile Pro 1300	Pro Phe Gly	
ggc aaa Gly Lys 1305	tcc tcc aga gat Ser Ser Arg Asp 1310	aag atg tta gag Lys Met Leu Glu 1315	act gtt agg aca Thr Val Arg Thr	4032
cca gcc Pro Ala 1320	ctc cac ttc aag tct Leu His Phe Lys Ser 1325	gtg gga ttc cat Val Gly Phe His 1330	ctg cca tct cga Leu Pro Ser Arg	4077
gag ttc Glu Phe 1335	caa gtc cct act ttt Gln Val Pro Thr Phe 1340	acc att ccc aag ttg Thr Ile Pro Lys Leu 1345	tat caa ctg Tyr Gln Leu	4122
caa gtg Gln Val 1350	cct ctc ctg ggt gtt Pro Leu Leu Gly Val 1355	cta gac ctc tcc acg Leu Asp Leu Ser Thr 1360	aat gtc tac Asn Val Tyr	4167
agc aac Ser Asn 1365	ttg tac aac tgg tcc Leu Tyr Asn Trp Ser 1370	gcc tcc tac agt ggt Ala Ser Tyr Ser Gly 1375	ggc aac acc Gly Asn Thr	4212
agc aca Ser Thr 1380	gac cat ttc agc ctt Asp His Phe Ser Leu 1385	cgg gct cgt tac cac Arg Ala Arg Tyr His 1390	atg aag gct Met Lys Ala	4257
gac tct Asp Ser 1395	gtg gtt gac ctg ctt Val Val Asp Leu Leu 1400	tcc tac aat gtg caa Ser Tyr Asn Val Gln 1405	gga tct gga Gly Ser Gly	4302
gaa aca Glu Thr 1410	aca tat gac cac aag Thr Tyr Asp His Lys 1415	aat acg ttc aca cta Asn Thr Phe Thr Leu 1420	tca tgt gat Ser Cys Asp	4347
ggg tct Gly Ser 1425	cta cgc cac aaa ttt Leu Arg His Lys Phe 1430	cta gat tcg aat atc Leu Asp Ser Asn Ile 1435	aaa ttc agt Lys Phe Ser	4392
cat gta His Val 1440	gaa aaa ctt gga aac Glu Lys Leu Gly Asn 1445	aac cca gtc tca aaa Asn Pro Val Ser Lys 1450	ggt tta cta Gly Leu Leu	4437
ata ttc Ile Phe 1455	gat gca tct agt tcc Asp Ala Ser Ser Ser 1460	tgg gga cca cag atg Trp Gly Pro Gln Met 1465	tct gct tca Ser Ala Ser	4482
gtt cat Val His 1470	ttg gac tcc aaa aag Leu Asp Ser Lys Lys 1475	aaa cag cat ttg ttt Lys Gln His Leu Phe 1480	gtc aaa gaa Val Lys Glu	4527
gtc aag Val Lys 1485	att gat ggg cag ttc Ile Asp Gly Gln Phe 1490	aga gtc tct tcg ttc Arg Val Ser Ser Phe 1495	tat gct aaa Tyr Ala Lys	4572
ggc aca Gly Thr 1500	tat ggc ctg tct tgt Tyr Gly Leu Ser Cys 1505	cag agg gat cct aac Gln Arg Asp Pro Asn 1510	act ggc cgg Thr Gly Arg	4617
ctc aat	gga gag tcc aac ctg	agg ttt aac tcc tcc	tac ctc caa	4662

Leu Asn 1515	Gly Glu Ser Asn 1520	Leu Arg Phe Asn Ser Ser 1525	Tyr Leu Gln	
ggc acc Gly Thr 1530	aac cag ata aca Asn Gln Ile Thr 1535	gga aga tat gaa gat Gly Arg Tyr Glu Asp 1540	gga acc ctc tcc Gly Thr Leu Ser	4707
ctc acc Leu Thr 1545	tcc acc tct gat Ser Thr Ser Asp 1550	ctg caa agt ggc atc Leu Gln Ser Gly Ile 1555	att aaa aat act Ile Lys Asn Thr	4752
gct tcc Ala Ser 1560	cta aag tat gag Leu Lys Tyr Glu 1565	aac tac gag ctg act Asn Tyr Glu Leu Thr 1570	tta aaa tct gac Leu Lys Ser Asp	4797
acc aat Thr Asn 1575	ggg aag tat aag Gly Lys Tyr Lys 1580	aac ttt gcc act tct Asn Phe Ala Thr Ser 1585	aag atg gat Lys Met Asp	4842
atg acc Met Thr 1590	ttc tct aag caa Phe Ser Lys Gln 1595	aat gca ctg ctg cgt Asn Ala Leu Leu Arg 1600	tct gaa tat cag Ser Glu Tyr Gln	4887
gct gat Ala Asp 1605	tac gag tca ttg Tyr Glu Ser Leu 1610	agg ttc ttc agc ctg Arg Phe Phe Ser Leu 1615	ctt tct gga tca Leu Ser Gly Ser	4932
cta aat Leu Asn 1620	tcc cat ggt ctt Ser His Gly Leu 1625	gag tta aat gct gac Glu Leu Asn Ala Asp 1630	atc tta ggc act Ile Leu Gly Thr	4977
gac aaa Asp Lys 1635	att aat agt ggt Ile Asn Ser Gly 1640	gct cac aag gcg aca Ala His Lys Ala Thr 1645	cta agg att ggc Leu Arg Ile Gly	5022
caa gat Gln Asp 1650	gga ata tct acc Gly Ile Ser Thr 1655	agt gca acg acc aac Ser Ala Thr Thr Asn 1660	ttg aag tgt agt Leu Lys Cys Ser	5067
ctc ctg Leu Leu 1665	gtg ctg gag aat Val Leu Glu Asn 1670	gag ctg aat gca gag Glu Leu Asn Ala Glu 1675	ctt ggc ctc tct Leu Gly Leu Ser	5112
ggg gca Gly Ala 1680	tct atg aaa tta Ser Met Lys Leu 1685	aca gca aat ggc cgc Thr Asn Gly Arg 1690	ttc agg gaa cac Phe Arg Glu His	5157
aat gca Asn Ala 1695	aaa ttc agt ctg Lys Phe Ser Leu 1700	gat ggg aaa gcc gcc Asp Gly Lys Ala Ala 1705	ctc aca gag cta Leu Thr Glu Leu	5202
tca ctg Ser Leu 1710	gga agt gct tat Gly Ser Ala Tyr 1715	cag gcc atg att ctg Gln Ala Met Ile Leu 1720	ggt gtc gac agc Gly Val Asp Ser	5247
aaa aac Lys Asn 1725	att ttc aac ttc Ile Phe Asn Phe 1730	aag gtc agt caa gaa Lys Val Ser Gln Glu 1735	gga ctt aag ctc Gly Leu Lys Leu	5292
tca aat	gac atg atg ggc tca	tat gct gaa atg aaa	ttt gac cac	5337

Ser	Asn	Asp	Met	Met	Gly	Ser	Tyr	Ala	Glu	Met	Lys	Phe	Asp	His	
1740						1745					1750				
aca	aac	agt	ctg	aac	att	gca	ggc	tta	tca	ctg	gac	ttc	tct	tca	5382
Thr	Asn	Ser	Leu	Asn	Ile	Ala	Gly	Leu	Ser	Leu	Asp	Phe	Ser	Ser	
1755						1760					1765				
aaa	ctt	gac	aac	att	tac	agc	tct	gac	aag	ttt	tat	aag	caa	act	5427
Lys	Leu	Asp	Asn	Ile	Tyr	Ser	Ser	Asp	Lys	Phe	Tyr	Lys	Gln	Thr	
1770						1775					1780				
gtt	aat	tta	cag	cta	cag	ccc	tat	tct	ctg	gta	act	act	tta	aac	5472
Val	Asn	Leu	Gln	Leu	Gln	Pro	Tyr	Ser	Leu	Val	Thr	Thr	Leu	Asn	
1785						1790					1795				
agt	gac	ctg	aaa	tac	aat	gct	ctg	gat	ctc	acc	aac	aat	ggg	aaa	5517
Ser	Asp	Leu	Lys	Tyr	Asn	Ala	Leu	Asp	Leu	Thr	Asn	Asn	Gly	Lys	
1800						1805					1810				
cta	cgg	cta	gaa	ccc	ctg	aag	ctg	cat	gtg	gct	ggg	aac	cta	aaa	5562
Leu	Arg	Leu	Glu	Pro	Leu	Lys	Leu	His	Val	Ala	Gly	Asn	Leu	Lys	
1815						1820					1825				
gga	gcc	tac	caa	aat	aat	gaa	ata	aaa	cac	atc	tat	gcc	atc	tct	5607
Gly	Ala	Tyr	Gln	Asn	Asn	Glu	Ile	Lys	His	Ile	Tyr	Ala	Ile	Ser	
1830						1835					1840				
tct	gct	gcc	tta	tca	gca	agc	tat	aaa	gca	gac	act	gtt	gct	aag	5652
Ser	Ala	Ala	Leu	Ser	Ala	Ser	Tyr	Lys	Ala	Asp	Thr	Val	Ala	Lys	
1845						1850					1855				
gtt	cag	ggg	gtg	gag	ttt	agc	cat	cgg	ctc	aac	aca	gac	atc	gct	5697
Val	Gln	Gly	Val	Glu	Phe	Ser	His	Arg	Leu	Asn	Thr	Asp	Ile	Ala	
1860						1865					1870				
ggg	ctg	gct	tca	gcc	att	gac	atg	agc	aca	aac	tat	aat	tca	gac	5742
Gly	Leu	Ala	Ser	Ala	Ile	Asp	Met	Ser	Thr	Asn	Tyr	Asn	Ser	Asp	
1875						1880					1885				
tca	ctg	cat	ttc	agc	aat	gtc	ttc	cgt	tct	gta	atg	gcc	ccg	ttt	5787
Ser	Leu	His	Phe	Ser	Asn	Val	Phe	Arg	Ser	Val	Met	Ala	Pro	Phe	
1890						1895					1900				
acc	atg	acc	atc	gat	gca	cat	aca	aat	ggc	aat	ggg	aaa	ctc	gct	5832
Thr	Met	Thr	Ile	Asp	Ala	His	Thr	Asn	Gly	Asn	Gly	Lys	Leu	Ala	
1905						1910					1915				
ctc	tgg	gga	gaa	cat	act	ggg	cag	ctg	tat	agc	aaa	ttc	ctg	ttg	5877
Leu	Trp	Gly	Glu	His	Thr	Gly	Gln	Leu	Tyr	Ser	Lys	Phe	Leu	Leu	
1920						1925					1930				
aaa	gca	gaa	cct	ctg	gca	ttt	act	ttc	tct	cat	gat	tac	aaa	ggc	5922
Lys	Ala	Glu	Pro	Leu	Ala	Phe	Thr	Phe	Ser	His	Asp	Tyr	Lys	Gly	
1935						1940					1945				
tcc	aca	agt	cat	cat	ctc	gtg	tct	agg	aaa	agc	atc	agt	gca	gct	5967
Ser	Thr	Ser	His	His	Leu	Val	Ser	Arg	Lys	Ser	Ile	Ser	Ala	Ala	
1950						1955					1960				
ctt	gaa	cac	aaa	gtc	agt	gcc	ctg	ctt	act	cca	gct	gag	cag	aca	6012

Leu Glu 1965	His Lys Val Ser 1970	Ala 1970	Leu Leu Thr Pro 1975	Ala 1975	Glu Gln Thr	
ggc acc Gly Thr 1980	tgg aaa ctc aag acc Trp Lys Leu Lys Thr 1985	caa ttt aac aac aat Gln Phe Asn Asn Asn 1990			gaa tac agc Glu Tyr Ser	6057
cag gac Gln Asp 1995	ttg gat gct tac aac Leu Asp Ala Tyr Asn 2000	act aaa gat aaa att Thr Lys Asp Lys Ile 2005			ggc gtg gag Gly Val Glu	6102
ctt act Leu Thr 2010	gga cga act ctg gct Gly Arg Thr Leu Ala 2015	gac cta act cta cta Asp Leu Thr Leu Leu 2020			gac tcc cca Asp Ser Pro	6147
att aaa Ile Lys 2025	gtg cca ctt tta ctc Val Pro Leu Leu Leu 2030	agt gag ccc atc aat Ser Glu Pro Ile Asn 2035			atc att gat Ile Ile Asp	6192
gct tta Ala Leu 2040	gag atg aga gat gcc Glu Met Arg Asp Ala 2045	gtt gag aag ccc caa Val Glu Lys Pro Gln 2050			gaa ttt aca Glu Phe Thr	6237
att gtt Ile Val 2055	gct ttt gta aag tat Ala Phe Val Lys Tyr 2060	gat aaa aac caa gat Asp Lys Asn Gln Asp 2065			gtt cac tcc Val His Ser	6282
att aac Ile Asn 2070	ctc cca ttt ttt gag Leu Pro Phe Phe Glu 2075	acc ttg caa gaa tat Thr Leu Gln Glu Tyr 2080			ttt gag agg Phe Glu Arg	6327
aat cga Asn Arg 2085	caa acc att ata gtt Gln Thr Ile Ile Val 2090	gta ctg gaa aac gta Val Leu Glu Asn Val 2095			cag aga aac Gln Arg Asn	6372
ctg aag Leu Lys 2100	cac atc aat att gat His Ile Asn Ile Asp 2105	caa ttt gta aga aaa Gln Phe Val Arg Lys 2110			tac aga gca Tyr Arg Ala	6417
gcc ctg Ala Leu 2115	gga aaa ctc cca cag Gly Lys Leu Pro Gln 2120	caa gct aat gat tat Gln Ala Asn Asp Tyr 2125			ctg aat tca Leu Asn Ser	6462
ttc aat Phe Asn 2130	tgg gag aga caa gtt Trp Glu Arg Gln Val 2135	tca cat gcc aag gag Ser His Ala Lys Glu 2140			aaa ctg act Lys Leu Thr	6507
gct ctc Ala Leu 2145	aca aaa aag tat aga Thr Lys Lys Tyr Arg 2150	att aca gaa aat gat Ile Thr Glu Asn Asp 2155			ata caa att Ile Gln Ile	6552
gca tta Ala Leu 2160	gat gat gcc aaa atc Asp Asp Ala Lys Ile 2165	aac ttt aat gaa aaa Asn Phe Asn Glu Lys 2170			cta tct caa Leu Ser Gln	6597
ctg cag Leu Gln 2175	aca tat atg ata caa Thr Tyr Met Ile Gln 2180	ttt gat cag tat att Phe Asp Gln Tyr Ile 2185			aaa gat agt Lys Asp Ser	6642
tat gat	tta cat gat ttg aaa	ata gct att gct aat			att att gat	6687

Tyr Asp 2190	Leu His Asp Leu Lys 2195	Ile Ala Ile Ala Asn 2200	Ile Ile Asp	
gaa atc Glu Ile 2205	att gaa aaa tta aaa Ile Glu Lys Leu Lys 2210	agt ctt gat gag cac Ser Leu Asp Glu His 2215	tat cat atc Tyr His Ile	6732
cgt gta Arg Val 2220	aat tta gta aaa aca Asn Leu Val Lys Thr 2225	atc cat gat cta cat Ile His Asp Leu His 2230	ttg ttt att Leu Phe Ile	6777
gaa aat Glu Asn 2235	att gat ttt aac aaa Ile Asp Phe Asn Lys 2240	agt gga agt agt act Ser Gly Ser Ser Thr 2245	gca tcc tgg Ala Ser Trp	6822
att caa Ile Gln 2250	aat gtg gat act aag Asn Val Asp Thr Lys 2255	tac caa atc aga atc Tyr Gln Ile Arg Ile 2260	cag ata caa Gln Ile Gln	6867
gaa aaa Glu Lys 2265	ctg cag cag ctt aag Leu Gln Gln Leu Lys 2270	aga cac ata cag aat Arg His Ile Gln Asn 2275	ata gac atc Ile Asp Ile	6912
cag cac Gln His 2280	cta gct gga aag tta Leu Ala Gly Lys Leu 2285	aaa caa cac att gag Lys Gln His Ile Glu 2290	gct att gat Ala Ile Asp	6957
gtt aga Val Arg 2295	gtg ctt tta gat caa Val Leu Leu Asp Gln 2300	ttg gga act aca att Leu Gly Thr Thr Ile 2305	tca ttt gaa Ser Phe Glu	7002
aga ata Arg Ile 2310	aat gat gtt ctt gag Asn Asp Val Leu Glu 2315	cat gtc aaa cac ttt His Val Lys His Phe 2320	gtt ata aat Val Ile Asn	7047
ctt att Leu Ile 2325	ggg gat ttt gaa gta Gly Asp Phe Glu Val 2330	gct gag aaa atc aat Ala Glu Lys Ile Asn 2335	gcc ttc aga Ala Phe Arg	7092
gcc aaa Ala Lys 2340	gtc cat gag tta atc Val His Glu Leu Ile 2345	gag agg tat gaa gta Glu Arg Tyr Glu Val 2350	gac caa caa Asp Gln Gln	7137
atc cag Ile Gln 2355	gtt tta atg gat aaa Val Leu Met Asp Lys 2360	tta gta gag ttg gcc Leu Val Glu Leu Ala 2365	cac caa tac His Gln Tyr	7182
aag ttg Lys Leu 2370	aag gag act att cag Lys Glu Thr Ile Gln 2375	aag cta agc aat gtc Lys Leu Ser Asn Val 2380	cta caa caa Leu Gln Gln	7227
gtt aag Val Lys 2385	ata aaa gat tac ttt Ile Lys Asp Tyr Phe 2390	gag aaa ttg gtt gga Glu Lys Leu Val Gly 2395	ttt att gat Phe Ile Asp	7272
gat gct Asp Ala 2400	gtc aag aag ctt aat Val Lys Lys Leu Asn 2405	gaa tta tct ttt aaa Glu Leu Ser Phe Lys 2410	aca ttc att Thr Phe Ile	7317
gaa gat	gtt aac aaa ttc ctt	gac atg ttg ata aag	aaa tta aag	7362

Glu Asp	Val Asn Lys Phe	Leu	Asp Met Leu Ile	Lys	Lys Leu Lys	
2415		2420		2425		
tca ttt	gat tac cac cag	ttt	gta gat gaa acc	aat	gac aaa atc	7407
Ser Phe	Asp Tyr His Gln	Phe	Val Asp Glu Thr	Asn	Asp Lys Ile	
2430		2435		2440		
cgt gag	gtg act cag aga	ctc	aat ggt gaa att	cag	gct ctg gaa	7452
Arg Glu	Val Thr Gln Arg	Leu	Asn Gly Glu Ile	Gln	Ala Leu Glu	
2445		2450		2455		
cta cca	caa aaa gct gaa	gca	tta aaa ctg ttt	tta	gag gaa acc	7497
Leu Pro	Gln Lys Ala Glu	Ala	Leu Lys Leu Phe	Leu	Glu Glu Thr	
2460		2465		2470		
aag gcc	aca gtt gca gtg	tat	ctg gaa agc cta	cag	gac acc aaa	7542
Lys Ala	Thr Val Ala Val	Tyr	Leu Glu Ser Leu	Gln	Asp Thr Lys	
2475		2480		2485		
ata acc	tta atc atc aat	tgg	tta cag gag gct	tta	agt tca gca	7587
Ile Thr	Leu Ile Ile Asn	Trp	Leu Gln Glu Ala	Leu	Ser Ser Ala	
2490		2495		2500		
tct ttg	gct cac atg aag	gcc	aaa ttc cga gag	act	cta gaa gat	7632
Ser Leu	Ala His Met Lys	Ala	Lys Phe Arg Glu	Thr	Leu Glu Asp	
2505		2510		2515		
aca cga	gac cga atg tat	caa	atg gac att cag	cag	gaa ctt caa	7677
Thr Arg	Asp Arg Met Tyr	Gln	Met Asp Ile Gln	Gln	Glu Leu Gln	
2520		2525		2530		
cga tac	ctg tct ctg gta	ggc	cag gtt tat agc	aca	ctt gtc acc	7722
Arg Tyr	Leu Ser Leu Val	Gly	Gln Val Tyr Ser	Thr	Leu Val Thr	
2535		2540		2545		
tac att	tct gat tgg tgg	act	ctt gct gct aag	aac	ctt act gac	7767
Tyr Ile	Ser Asp Trp Trp	Thr	Leu Ala Ala Lys	Asn	Leu Thr Asp	
2550		2555		2560		
ttt gca	gag caa tat tct	atc	caa gat tgg gct	aaa	cgt atg aaa	7812
Phe Ala	Glu Gln Tyr Ser	Ile	Gln Asp Trp Ala	Lys	Arg Met Lys	
2565		2570		2575		
gca ttg	gta gag caa ggg	ttc	act gtt cct gaa	atc	aag acc atc	7857
Ala Leu	Val Glu Gln Gly	Phe	Thr Val Pro Glu	Ile	Lys Thr Ile	
2580		2585		2590		
ctt ggg	acc atg cct gcc	ttt	gaa gtc agt ctt	cag	gct ctt cag	7902
Leu Gly	Thr Met Pro Ala	Phe	Glu Val Ser Leu	Gln	Ala Leu Gln	
2595		2600		2605		
aaa gct	acc ttc cag aca	cct	gat ttt ata gtc	ccc	cta aca gat	7947
Lys Ala	Thr Phe Gln Thr	Pro	Asp Phe Ile Val	Pro	Leu Thr Asp	
2610		2615		2620		
ttg agg	att cca tca gtt	cag	ata aac ttc aaa	gac	tta aaa aat	7992
Leu Arg	Ile Pro Ser Val	Gln	Ile Asn Phe Lys	Asp	Leu Lys Asn	
2625		2630		2635		
ata aaa	atc cca tcc agg	ttt	tcc aca cca gaa	ttt	acc atc ctt	8037

Ile Lys 2640	Ile Pro Ser Arg Phe 2645	Ser Thr Pro Glu Phe 2650	Thr Ile Leu	
aac acc Asn Thr 2655	ttc cac att cct tcc Phe His Ile Pro Ser 2660	ttt aca att gac ttt Phe Thr Ile Asp Phe 2665	gta gaa atg Val Glu Met	8082
aaa gta Lys Val 2670	aag atc atc aga acc Lys Ile Ile Arg Thr 2675	att gac cag atg ctg Ile Asp Gln Met Leu 2680	aac agt gag Asn Ser Glu	8127
ctg cag Leu Gln 2685	tgg ccc gtt cca gat Trp Pro Val Pro Asp 2690	ata tat ctc agg gat Ile Tyr Leu Arg Asp 2695	ctg aag gtg Leu Lys Val	8172
gag gac Glu Asp 2700	att cct cta gcg aga Ile Pro Leu Ala Arg 2705	atc acc ctg cca gac Ile Thr Leu Pro Asp 2710	ttc cgt tta Phe Arg Leu	8217
cca gaa Pro Glu 2715	atc gca att cca gaa Ile Ala Ile Pro Glu 2720	ttc ata atc cca act Phe Ile Ile Pro Thr 2725	ctc aac ctt Leu Asn Leu	8262
aat gat Asn Asp 2730	ttt caa gtt cct gac Phe Gln Val Pro Asp 2735	ctt cac ata cca gaa Leu His Ile Pro Glu 2740	ttc cag ctt Phe Gln Leu	8307
ccc cac Pro His 2745	atc tca cac aca att Ile Ser His Thr Ile 2750	gaa gta cct act ttt Glu Val Pro Thr Phe 2755	ggc aag cta Gly Lys Leu	8352
tac agt Tyr Ser 2760	att ctg aaa atc caa Ile Leu Lys Ile Gln 2765	tct cct ctt ttc aca Ser Pro Leu Phe Thr 2770	tta gat gca Leu Asp Ala	8397
aat gct Asn Ala 2775	gac ata ggg aat gga Asp Ile Gly Asn Gly 2780	acc acc tca gca aac Thr Thr Ser Ala Asn 2785	gaa gca ggt Glu Ala Gly	8442
atc gca Ile Ala 2790	gct tcc atc act gcc Ala Ser Ile Thr Ala 2795	aaa gga gag tcc aaa Lys Gly Glu Ser Lys 2800	tta gaa gtt Leu Glu Val	8487
ctc aat Leu Asn 2805	ttt gat ttt caa gca Phe Asp Phe Gln Ala 2810	aat gca caa ctc tca Asn Ala Gln Leu Ser 2815	aac cct aag Asn Pro Lys	8532
att aat Ile Asn 2820	cog ctg gct ctg aag Pro Leu Ala Leu Lys 2825	gag tca gtg aag ttc Glu Ser Val Lys Phe 2830	tcc agc aag Ser Ser Lys	8577
tac ctg Tyr Leu 2835	aga acg gag cat ggg Arg Thr Glu His Gly 2840	agt gaa atg ctg ttt Ser Glu Met Leu Phe 2845	ttt gga aat Phe Gly Asn	8622
gct att Ala Ile 2850	gag gga aaa tca aac Glu Gly Lys Ser Asn 2855	aca gtg gca agt tta Thr Val Ala Ser Leu 2860	cac aca gaa His Thr Glu	8667
aaa aat	aca ctg gag ctt agt	aat gga gtg att gtc	aag ata aac	8712

Lys	Asn	Thr	Leu	Glu	Leu	Ser	Asn	Gly	Val	Ile	Val	Lys	Ile	Asn	
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Asn	Gln	Leu	Thr	Leu	Asp	Ser	Asn	Thr	Lys	Tyr	Phe	His	Lys	Leu	
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Asn	Ile	Pro	Lys	Leu	Asp	Phe	Ser	Ser	Gln	Ala	Asp	Leu	Arg	Asn	
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Glu	Ile	Lys	Thr	Leu	Leu	Lys	Ala	Gly	His	Ile	Ala	Trp	Thr	Ser	
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Ser	Gly	Lys	Gly	Ser	Trp	Lys	Trp	Ala	Cys	Pro	Arg	Phe	Ser	Asp	
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Glu	Gly	Thr	His	Glu	Ser	Gln	Ile	Ser	Phe	Thr	Ile	Glu	Gly	Pro	
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Leu	Thr	Ser	Phe	Gly	Leu	Ser	Asn	Lys	Ile	Asn	Ser	Lys	His	Leu	
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Arg	Val	Asn	Gln	Asn	Leu	Val	Tyr	Glu	Ser	Gly	Ser	Leu	Asn	Phe	
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Ser	Lys	Leu	Glu	Ile	Gln	Ser	Gln	Val	Asp	Ser	Gln	His	Val	Gly	
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His	Ser	Val	Leu	Thr	Ala	Lys	Gly	Met	Ala	Leu	Phe	Gly	Glu	Gly	
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Lys	Ala	Glu	Phe	Thr	Gly	Arg	His	Asp	Ala	His	Leu	Asn	Gly	Lys	
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Val	Ile	Gly	Thr	Leu	Lys	Asn	Ser	Leu	Phe	Phe	Ser	Ala	Gln	Pro	
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Phe	Glu	Ile	Thr	Ala	Ser	Thr	Asn	Asn	Glu	Gly	Asn	Leu	Lys	Val	
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Arg	Phe	Pro	Leu	Arg	Leu	Thr	Gly	Lys	Ile	Asp	Phe	Leu	Asn	Asn	
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Tyr	Ala	Leu	Phe	Leu	Ser	Pro	Ser	Ala	Gln	Gln	Ala	Ser	Trp	Gln	
	3075					3080					3085				
gta	agt	gct	agg	ttc	aat	cag	tat	aag	tac	aac	caa	aat	ttc	tct	9387

Val	Ser	Ala	Arg	Phe	Asn	Gln	Tyr	Lys	Tyr	Asn	Gln	Asn	Phe	Ser	
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Ala	Gly	Asn	Asn	Glu	Asn	Ile	Met	Glu	Ala	His	Val	Gly	Ile	Asn	
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Gly	Glu	Ala	Asn	Leu	Asp	Phe	Leu	Asn	Ile	Pro	Leu	Thr	Ile	Pro	
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gaa	atg	cgt	cta	cct	tac	aca	ata	atc	aca	act	cct	cca	ctg	aaa	9522
Glu	Met	Arg	Leu	Pro	Tyr	Thr	Ile	Ile	Thr	Thr	Pro	Pro	Leu	Lys	
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Asp	Phe	Ser	Leu	Trp	Glu	Lys	Thr	Gly	Leu	Lys	Glu	Phe	Leu	Lys	
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Thr	Thr	Lys	Gln	Ser	Phe	Asp	Leu	Ser	Val	Lys	Ala	Gln	Tyr	Lys	
	3165					3170					3175				
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Lys	Asn	Lys	His	Arg	His	Ser	Ile	Thr	Asn	Pro	Leu	Ala	Val	Leu	
	3180					3185					3190				
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Cys	Glu	Phe	Ile	Ser	Gln	Ser	Ile	Lys	Ser	Phe	Asp	Arg	His	Phe	
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Glu	Lys	Asn	Arg	Asn	Asn	Ala	Leu	Asp	Phe	Val	Thr	Lys	Ser	Tyr	
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Asn	Glu	Thr	Lys	Ile	Lys	Phe	Asp	Lys	Tyr	Lys	Ala	Glu	Lys	Ser	
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His	Asp	Glu	Leu	Pro	Arg	Thr	Phe	Gln	Ile	Pro	Gly	Tyr	Thr	Val	
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Pro	Val	Val	Asn	Val	Glu	Val	Ser	Pro	Phe	Thr	Ile	Glu	Met	Ser	
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Ala	Phe	Gly	Tyr	Val	Phe	Pro	Lys	Ala	Val	Ser	Met	Pro	Ser	Phe	
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Ser	Ile	Leu	Gly	Ser	Asp	Val	Arg	Val	Pro	Ser	Tyr	Thr	Leu	Ile	
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Leu	Pro	Ser	Leu	Glu	Leu	Pro	Val	Leu	His	Val	Pro	Arg	Asn	Leu	
	3300					3305					3310				
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Lys	Leu	Ser	Leu	Pro	Asp	Phe	Lys	Glu	Leu	Cys	Thr	Ile	Ser	His	
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Ile	Phe	Ile	Pro	Ala	Met	Gly	Asn	Ile	Thr	Tyr	Asp	Phe	Ser	Phe	
3330						3335					3340				
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Lys	Ser	Ser	Val	Ile	Thr	Leu	Asn	Thr	Asn	Ala	Glu	Leu	Phe	Asn	
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Gln	Ser	Asp	Ile	Val	Ala	His	Leu	Leu	Ser	Ser	Ser	Ser	Ser	Val	
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Ile	Asp	Ala	Leu	Gln	Tyr	Lys	Leu	Glu	Gly	Thr	Thr	Arg	Leu	Thr	
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Arg	Lys	Arg	Gly	Leu	Lys	Leu	Ala	Thr	Ala	Leu	Ser	Leu	Ser	Asn	
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Lys	Ser	Lys	Pro	Thr	Val	Ser	Ser	Ser	Met	Glu	Phe	Lys	Tyr	Asp	
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Phe	Asn	Ser	Ser	Met	Leu	Tyr	Ser	Thr	Ala	Lys	Gly	Ala	Val	Asp	
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Asp	Asp	Ile	Trp	Asn	Leu	Glu	Val	Lys	Glu	Asn	Phe	Ala	Gly	Glu	
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Asn	His	Leu	Gln	Leu	Glu	Gly	Leu	Phe	Phe	Thr	Asn	Gly	Glu	His	
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Leu	Val	Gln	Val	His	Ala	Ser	Gln	Pro	Ser	Ser	Phe	His	Asp	Phe	
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Pro	Asp	Leu	Gly	Gln	Glu	Val	Ala	Leu	Asn	Ala	Asn	Thr	Lys	Asn	
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Gln	Lys	Ile	Arg	Trp	Lys	Asn	Glu	Val	Arg	Ile	His	Ser	Gly	Ser	
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Phe	Gln	Ser	Gln	Val	Glu	Leu	Ser	Asn	Asp	Gln	Glu	Lys	Ala	His	
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Leu	Asp	Ile	Ala	Gly	Ser	Leu	Glu	Gly	His	Leu	Arg	Phe	Leu	Lys	
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aat	atc	atc	cta	cca	gtc	tat	gac	aag	agc	tta	tg	gat	ttc	cta	11142
Asn	Ile	Ile	Leu	Pro	Val	Tyr	Asp	Lys	Ser	Leu	Trp	Asp	Phe	Leu	
	3675					3680					3685				
aag	ctg	gat	gta	acc	acc	agc	att	ggt	agg	aga	cag	cat	ctt	cgt	11187
Lys	Leu	Asp	Val	Thr	Thr	Ser	Ile	Gly	Arg	Arg	Gln	His	Leu	Arg	
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Val	Ser	Thr	Ala	Phe	Val	Tyr	Thr	Lys	Asn	Pro	Asn	Gly	Tyr	Ser	
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Phe	Ser	Ile	Pro	Val	Lys	Val	Leu	Ala	Asp	Lys	Phe	Ile	Ile	Pro	
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Gly	Leu	Lys	Leu	Asn	Asp	Leu	Asn	Ser	Val	Leu	Val	Met	Pro	Thr	
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Phe	His	Val	Pro	Phe	Thr	Asp	Leu	Gln	Val	Pro	Ser	Cys	Lys	Leu	
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gac	ttc	aga	gaa	ata	caa	atc	tat	aag	aag	ctg	aga	act	tca	tca	11412

Asp Phe	Arg Glu Ile Gln Ile	Tyr Lys Lys Leu Arg	Thr Ser Ser	
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Phe Ala	Leu Asn Leu Pro Thr	Leu Pro Glu Val Lys	Phe Pro Glu	
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Val Asp	Val Leu Thr Lys Tyr	Ser Gln Pro Glu Asp	Ser Leu Ile	
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ccc ttt	ttt gag ata acc gtg	cct gaa tct cag tta	act gtg tcc	11547
Pro Phe	Phe Glu Ile Thr Val	Pro Glu Ser Gln Leu	Thr Val Ser	
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Gln Phe	Thr Leu Pro Lys Ser	Val Ser Asp Gly Ile	Ala Ala Leu	
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Asp Leu	Asn Ala Val Ala Asn	Lys Ile Ala Asp Phe	Glu Leu Pro	
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acc atc	atc gtg cct gag cag	acc att gag att ccc	tcc att aag	11682
Thr Ile	Ile Val Pro Glu Gln	Thr Ile Glu Ile Pro	Ser Ile Lys	
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Phe Ser	Val Pro Ala Gly Ile	Ala Ile Pro Ser Phe	Gln Ala Leu	
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act gca	cgc ttt gag gta gac	tct ccc gtg tat aat	gcc act tgg	11772
Thr Ala	Arg Phe Glu Val Asp	Ser Pro Val Tyr Asn	Ala Thr Trp	
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Ser Ala	Ser Leu Lys Asn Lys	Ala Asp Tyr Val Glu	Thr Val Leu	
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Asp Ser	Thr Cys Ser Ser Thr	Val Gln Phe Leu Glu	Tyr Glu Leu	
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Lys Thr	Lys Gly Thr Phe Ala	His Arg Asp Phe Ser	Ala Glu Tyr	
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Glu Glu	Asp Gly Lys Tyr Glu	Gly Leu Gln Glu Trp	Glu Gly Lys	
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Ala His	Leu Asn Ile Lys Ser	Pro Ala Phe Thr Asp	Leu His Leu	
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cgc tac	cag aaa gac aag aaa	ggc atc tcc acc tca	gca gcc tcc	12087

Arg	Tyr	Gln	Lys	Asp	Lys	Lys	Gly	Ile	Ser	Thr	Ser	Ala	Ala	Ser	
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Pro	Ala	Val	Gly	Thr	Val	Gly	Met	Asp	Met	Asp	Glu	Asp	Asp	Asp	
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Phe	Ser	Lys	Trp	Asn	Phe	Tyr	Tyr	Ser	Pro	Gln	Ser	Ser	Pro	Asp	
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Lys	Lys	Leu	Thr	Ile	Phe	Lys	Thr	Glu	Leu	Arg	Val	Arg	Glu	Ser	
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Ser	Gly	Leu	Leu	Thr	Ser	Leu	Lys	Asp	Asn	Val	Pro	Lys	Ala	Thr	
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Glu	Leu	Leu	Thr	Gln	Glu	Gly	Gln	Ala	Ser	Phe	Gln	Gly	Leu	Lys	
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Ser Gln	Val Tyr Ser Lys Val	His Asn Gly Ser Glu	Ile Leu Phe	
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Ser Tyr	Phe Gln Asp Leu Val	Ile Thr Leu Pro Phe	Glu Leu Arg	
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Lys His	Lys Leu Ile Asp Val	Ile Ser Met Tyr Arg	Glu Leu Leu	
4260	4265	4270		
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Lys Asp	Leu Ser Lys Glu Ala	Gln Glu Val Phe Lys	Ala Ile Gln	
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tct ctc	aag acc aca gag gtg	cta cgt aat ctt cag	gac ctt tta	12987
Ser Leu	Lys Thr Thr Glu Val	Leu Arg Asn Leu Gln	Asp Leu Leu	
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Gln Phe	Ile Phe Gln Leu Ile	Glu Asp Asn Ile Lys	Gln Leu Lys	
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Glu Met	Lys Phe Thr Tyr Leu	Ile Asn Tyr Ile Gln	Asp Glu Ile	
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Asn Thr	Ile Phe Asn Asp Tyr	Ile Pro Tyr Val Phe	Lys Leu Leu	
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Lys Glu	Asn Leu Cys Leu Asn	Leu His Lys Phe Asn	Glu Phe Ile	
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Gln Asn	Glu Leu Gln Glu Ala	Ser Gln Glu Leu Gln	Gln Ile His	
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Val Gly	Trp Thr Val Lys Tyr	Tyr Glu Leu Glu Glu	Lys Ile Val	
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Glu Tyr	Ile Val Ser Ala Ser	Asn Phe Thr Ser Gln	Leu Ser Ser	
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Gln Val Glu Gln Phe Leu His Arg Asn Ile Gln Glu Tyr Leu Ser
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 Ile Leu Thr Asp Pro Asp Gly Lys Gly Lys Glu Lys Ile Ala Glu
 4455 4460 4465
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 Leu Ser Ala Thr Ala Gln Glu Ile Ile Lys Ser Gln Ala Ile Ala
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 His Thr Phe Leu Ile Tyr Ile Thr Glu Leu Leu Lys Lys Leu Gln
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 Ser Thr Thr Val Met Asn Pro Tyr Met Lys Leu Ala Pro Gly Glu
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Glu Asn Val Ser Leu Val Cys Pro Lys Asp Ala Thr Arg Phe Lys His
 35 40 45

Leu Arg Lys Tyr Thr Tyr Asn Tyr Glu Ala Glu Ser Ser Ser Gly Val
 50 55 60

Pro Gly Thr Ala Asp Ser Arg Ser Ala Thr Arg Ile Asn Cys Lys Val
 65 70 75 80

Glu Leu Glu Val Pro Gln Leu Cys Ser Phe Ile Leu Lys Thr Ser Gln
 85 90 95

Cys Ile Leu Lys Glu Val Tyr Gly Phe Asn Pro Glu Gly Lys Ala Leu
 100 105 110

Leu Lys Lys Thr Lys Asn Ser Glu Glu Phe Ala Ala Ala Met Ser Arg
 115 120 125

Tyr Glu Leu Lys Leu Ala Ile Pro Glu Gly Lys Gln Val Phe Leu Tyr
 130 135 140

Pro Glu Lys Asp Glu Pro Thr Tyr Ile Leu Asn Ile Lys Arg Gly Ile
 145 150 155 160

Ile Ser Ala Leu Leu Val Pro Pro Glu Thr Glu Glu Ala Lys Gln Val
 165 170 175

Leu Phe Leu Asp Thr Val Tyr Gly Asn Cys Ser Thr His Phe Thr Val
 180 185 190

Lys Thr Arg Lys Gly Asn Val Ala Thr Glu Ile Ser Thr Glu Arg Asp
 195 200 205

Leu Gly Gln Cys Asp Arg Phe Lys Pro Ile Arg Thr Gly Ile Ser Pro
 210 215 220

Leu Ala Leu Ile Lys Gly Met Thr Arg Pro Leu Ser Thr Leu Ile Ser
 225 230 235 240

Ser Ser Gln Ser Cys Gln Tyr Thr Leu Asp Ala Lys Arg Lys His Val
 245 250 255

Ala Glu Ala Ile Cys Lys Glu Gln His Leu Phe Leu Pro Phe Ser Tyr
 260 265 270

Lys Asn Lys Tyr Gly Met Val Ala Gln Val Thr Gln Thr Leu Lys Leu
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Glu Asp Thr Pro Lys Ile Asn Ser Arg Phe Phe Gly Glu Gly Thr Lys
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Lys Met Gly Leu Ala Phe Glu Ser Thr Lys Ser Thr Ser Pro Pro Lys
 305 310 315 320

Gln Ala Glu Ala Val Leu Lys Thr Val Gln Glu Leu Lys Lys Leu Thr
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Ile Ser Glu Gln Asn Ile Gln Arg Ala Asn Leu Phe Asn Lys Leu Val
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Thr Glu Leu Arg Gly Leu Ser Asp Glu Ala Val Thr Ser Leu Leu Pro
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Gln Leu Ile Glu Val Ser Ser Pro Ile Thr Leu Gln Ala Leu Val Gln
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Cys Gly Gln Pro Gln Cys Ser Thr His Ile Leu Gln Trp Leu Lys Arg
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Val His Ala Asn Pro Leu Leu Ile Asp Val Val Thr Tyr Leu Val Ala
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Leu Ile Pro Glu Pro Ser Ala Gln Gln Leu Arg Glu Ile Phe Asn Met
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Ala Arg Asp Gln Arg Ser Arg Ala Thr Leu Tyr Ala Leu Ser His Ala
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Val Asn Asn Tyr His Lys Thr Asn Pro Thr Gly Thr Gln Glu Leu Leu
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Asp Ile Ala Asn Tyr Leu Met Glu Gln Ile Gln Asp Asp Cys Thr Gly
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Asp Glu Asp Tyr Thr Tyr Leu Ile Leu Arg Val Ile Gly Asn Met Gly
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Gln Thr Met Glu Gln Leu Thr Pro Glu Leu Lys Ser Ser Ile Leu Lys
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Cys Val Gln Ser Thr Lys Pro Ser Leu Met Ile Gln Lys Ala Ala Ile
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Ile Val Gln Ile Leu Pro Trp Glu Gln Asn Glu Gln Val Lys Asn Phe
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Val Ala Ser His Ile Ala Asn Ile Leu Asn Ser Glu Glu Leu Asp Ile
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Pro Thr Val Met Asp Phe Arg Lys Phe Ser Arg Asn Tyr Gln Leu Tyr
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Gly Asn Leu Ile Phe Asp Pro Asn Asn Tyr Leu Pro Lys Glu Ser Met
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Leu Lys Thr Thr Leu Thr Ala Phe Gly Phe Ala Ser Ala Asp Leu Ile
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Glu Ile Gly Leu Glu Gly Lys Gly Phe Glu Pro Thr Leu Glu Ala Leu
 690 695 700

Phe Gly Lys Gln Gly Phe Phe Pro Asp Ser Val Asn Lys Ala Leu Tyr
 705 710 715 720

Trp Val Asn Gly Gln Val Pro Asp Gly Val Ser Lys Val Leu Val Asp
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His Phe Gly Tyr Thr Lys Asp Asp Lys His Glu Gln Asp Met Val Asn
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Val Glu Phe Val Thr Asn Met Gly Ile Ile Ile Pro Asp Phe Ala Arg
885 890 895

Ser Gly Val Gln Met Asn Thr Asn Phe Phe His Glu Ser Gly Leu Glu
900 905 910

Ala His Val Ala Leu Lys Pro Gly Lys Leu Lys Phe Ile Ile Pro Ser
915 920 925

Pro Lys Arg Pro Val Lys Leu Leu Ser Gly Gly Asn Thr Leu His Leu
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Val Ser Thr Thr Lys Thr Glu Val Ile Pro Pro Leu Ile Glu Asn Arg
945 950 955 960

Gln Ser Trp Ser Val Cys Lys Gln Val Phe Pro Gly Leu Asn Tyr Cys
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Thr Ser Gly Ala Tyr Ser Asn Ala Ser Ser Thr Asp Ser Ala Ser Tyr
980 985 990

Tyr Pro Leu Thr Gly Asp Thr Arg Leu Glu Leu Glu Leu Arg Pro Thr
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1190						1195					1200			
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Asp	Leu	Lys	Met	Leu	Glu	Thr	Val	Arg	Thr	Pro	Ala	Leu	His	Phe
1310						1315					1320			
Lys	Ser	Val	Gly	Phe	His	Leu	Pro	Ser	Arg	Glu	Phe	Gln	Val	Pro
1325						1330					1335			
Thr	Phe	Thr	Ile	Pro	Lys	Leu	Tyr	Gln	Leu	Gln	Val	Pro	Leu	Leu
1340						1345					1350			
Gly	Val	Leu	Asp	Leu	Ser	Thr	Asn	Val	Tyr	Ser	Asn	Leu	Tyr	Asn
1355						1360					1365			
Trp	Ser	Ala	Ser	Tyr	Ser	Gly	Gly	Asn	Thr	Ser	Thr	Asp	His	Phe
1370						1375					1380			
Ser	Leu	Arg	Ala	Arg	Tyr	His	Met	Lys	Ala	Asp	Ser	Val	Val	Asp
1385						1390					1395			
Leu	Leu	Ser	Tyr	Asn	Val	Gln	Gly	Ser	Gly	Glu	Thr	Thr	Tyr	Asp
1400						1405					1410			
His	Lys	Asn	Thr	Phe	Thr	Leu	Ser	Cys	Asp	Gly	Ser	Leu	Arg	His
1415						1420					1425			
Lys	Phe	Leu	Asp	Ser	Asn	Ile	Lys	Phe	Ser	His	Val	Glu	Lys	Leu
1430						1435					1440			
Gly	Asn	Asn	Pro	Val	Ser	Lys	Gly	Leu	Leu	Ile	Phe	Asp	Ala	Ser
1445						1450					1455			

Ser	Ser	Trp	Gly	Pro	Gln	Met	Ser	Ala	Ser	Val	His	Leu	Asp	Ser
1460						1465					1470			
Lys	Lys	Lys	Gln	His	Leu	Phe	Val	Lys	Glu	Val	Lys	Ile	Asp	Gly
1475						1480					1485			
Gln	Phe	Arg	Val	Ser	Ser	Phe	Tyr	Ala	Lys	Gly	Thr	Tyr	Gly	Leu
1490						1495					1500			
Ser	Cys	Gln	Arg	Asp	Pro	Asn	Thr	Gly	Arg	Leu	Asn	Gly	Glu	Ser
1505						1510					1515			
Asn	Leu	Arg	Phe	Asn	Ser	Ser	Tyr	Leu	Gln	Gly	Thr	Asn	Gln	Ile
1520						1525					1530			
Thr	Gly	Arg	Tyr	Glu	Asp	Gly	Thr	Leu	Ser	Leu	Thr	Ser	Thr	Ser
1535						1540					1545			
Asp	Leu	Gln	Ser	Gly	Ile	Ile	Lys	Asn	Thr	Ala	Ser	Leu	Lys	Tyr
1550						1555					1560			
Glu	Asn	Tyr	Glu	Leu	Thr	Leu	Lys	Ser	Asp	Thr	Asn	Gly	Lys	Tyr
1565						1570					1575			
Lys	Asn	Phe	Ala	Thr	Ser	Asn	Lys	Met	Asp	Met	Thr	Phe	Ser	Lys
1580						1585					1590			
Gln	Asn	Ala	Leu	Leu	Arg	Ser	Glu	Tyr	Gln	Ala	Asp	Tyr	Glu	Ser
1595						1600					1605			
Leu	Arg	Phe	Phe	Ser	Leu	Leu	Ser	Gly	Ser	Leu	Asn	Ser	His	Gly
1610						1615					1620			
Leu	Glu	Leu	Asn	Ala	Asp	Ile	Leu	Gly	Thr	Asp	Lys	Ile	Asn	Ser
1625						1630					1635			
Gly	Ala	His	Lys	Ala	Thr	Leu	Arg	Ile	Gly	Gln	Asp	Gly	Ile	Ser
1640						1645					1650			
Thr	Ser	Ala	Thr	Thr	Asn	Leu	Lys	Cys	Ser	Leu	Leu	Val	Leu	Glu
1655						1660					1665			
Asn	Glu	Leu	Asn	Ala	Glu	Leu	Gly	Leu	Ser	Gly	Ala	Ser	Met	Lys
1670						1675					1680			

Leu Thr 1685	Thr Asn Gly Arg Phe 1690	Arg Glu His Asn Ala 1695	Lys Phe Ser
Leu Asp 1700	Gly Lys Ala Ala Leu 1705	Thr Glu Leu Ser Leu 1710	Gly Ser Ala
Tyr Gln 1715	Ala Met Ile Leu Gly 1720	Val Asp Ser Lys Asn 1725	Ile Phe Asn
Phe Lys 1730	Val Ser Gln Glu Gly 1735	Leu Lys Leu Ser Asn 1740	Asp Met Met
Gly Ser 1745	Tyr Ala Glu Met Lys 1750	Phe Asp His Thr Asn 1755	Ser Leu Asn
Ile Ala 1760	Gly Leu Ser Leu Asp 1765	Phe Ser Ser Lys Leu 1770	Asp Asn Ile
Tyr Ser 1775	Ser Asp Lys Phe Tyr 1780	Lys Gln Thr Val Asn 1785	Leu Gln Leu
Gln Pro 1790	Tyr Ser Leu Val Thr 1795	Thr Leu Asn Ser Asp 1800	Leu Lys Tyr
Asn Ala 1805	Leu Asp Leu Thr Asn 1810	Asn Gly Lys Leu Arg 1815	Leu Glu Pro
Leu Lys 1820	Leu His Val Ala Gly 1825	Asn Leu Lys Gly Ala 1830	Tyr Gln Asn
Asn Glu 1835	Ile Lys His Ile Tyr 1840	Ala Ile Ser Ser Ala 1845	Ala Leu Ser
Ala Ser 1850	Tyr Lys Ala Asp Thr 1855	Val Ala Lys Val Gln 1860	Gly Val Glu
Phe Ser 1865	His Arg Leu Asn Thr 1870	Asp Ile Ala Gly Leu 1875	Ala Ser Ala
Ile Asp 1880	Met Ser Thr Asn Tyr 1885	Asn Ser Asp Ser Leu 1890	His Phe Ser
Asn Val 1895	Phe Arg Ser Val Met 1900	Ala Pro Phe Thr Met 1905	Thr Ile Asp

Ala	His	Thr	Asn	Gly	Asn	Gly	Lys	Leu	Ala	Leu	Trp	Gly	Glu	His
1910						1915					1920			
Thr	Gly	Gln	Leu	Tyr	Ser	Lys	Phe	Leu	Leu	Lys	Ala	Glu	Pro	Leu
1925						1930					1935			
Ala	Phe	Thr	Phe	Ser	His	Asp	Tyr	Lys	Gly	Ser	Thr	Ser	His	His
1940						1945					1950			
Leu	Val	Ser	Arg	Lys	Ser	Ile	Ser	Ala	Ala	Leu	Glu	His	Lys	Val
1955						1960					1965			
Ser	Ala	Leu	Leu	Thr	Pro	Ala	Glu	Gln	Thr	Gly	Thr	Trp	Lys	Leu
1970						1975					1980			
Lys	Thr	Gln	Phe	Asn	Asn	Asn	Glu	Tyr	Ser	Gln	Asp	Leu	Asp	Ala
1985						1990					1995			
Tyr	Asn	Thr	Lys	Asp	Lys	Ile	Gly	Val	Glu	Leu	Thr	Gly	Arg	Thr
2000						2005					2010			
Leu	Ala	Asp	Leu	Thr	Leu	Leu	Asp	Ser	Pro	Ile	Lys	Val	Pro	Leu
2015						2020					2025			
Leu	Leu	Ser	Glu	Pro	Ile	Asn	Ile	Ile	Asp	Ala	Leu	Glu	Met	Arg
2030						2035					2040			
Asp	Ala	Val	Glu	Lys	Pro	Gln	Glu	Phe	Thr	Ile	Val	Ala	Phe	Val
2045						2050					2055			
Lys	Tyr	Asp	Lys	Asn	Gln	Asp	Val	His	Ser	Ile	Asn	Leu	Pro	Phe
2060						2065					2070			
Phe	Glu	Thr	Leu	Gln	Glu	Tyr	Phe	Glu	Arg	Asn	Arg	Gln	Thr	Ile
2075						2080					2085			
Ile	Val	Val	Leu	Glu	Asn	Val	Gln	Arg	Asn	Leu	Lys	His	Ile	Asn
2090						2095					2100			
Ile	Asp	Gln	Phe	Val	Arg	Lys	Tyr	Arg	Ala	Ala	Leu	Gly	Lys	Leu
2105						2110					2115			
Pro	Gln	Gln	Ala	Asn	Asp	Tyr	Leu	Asn	Ser	Phe	Asn	Trp	Glu	Arg
2120						2125					2130			

Gln Val 2135	Ser His Ala Lys	Glu 2140	Lys Leu Thr Ala Leu 2145	Thr Lys Lys
Tyr Arg 2150	Ile Thr Glu Asn Asp	2155	Ile Gln Ile Ala Leu 2160	Asp Asp Ala
Lys Ile 2165	Asn Phe Asn Glu Lys	2170	Leu Ser Gln Leu Gln 2175	Thr Tyr Met
Ile Gln 2180	Phe Asp Gln Tyr Ile	2185	Lys Asp Ser Tyr Asp 2190	Leu His Asp
Leu Lys 2195	Ile Ala Ile Ala Asn	2200	Ile Ile Asp Glu Ile 2205	Ile Glu Lys
Leu Lys 2210	Ser Leu Asp Glu His	2215	Tyr His Ile Arg Val 2220	Asn Leu Val
Lys Thr 2225	Ile His Asp Leu His	2230	Leu Phe Ile Glu Asn 2235	Ile Asp Phe
Asn Lys 2240	Ser Gly Ser Ser Thr	2245	Ala Ser Trp Ile Gln 2250	Asn Val Asp
Thr Lys 2255	Tyr Gln Ile Arg Ile	2260	Gln Ile Gln Glu Lys 2265	Leu Gln Gln
Leu Lys 2270	Arg His Ile Gln Asn	2275	Ile Asp Ile Gln His 2280	Leu Ala Gly
Lys Leu 2285	Lys Gln His Ile Glu	2290	Ala Ile Asp Val Arg 2295	Val Leu Leu
Asp Gln 2300	Leu Gly Thr Thr Ile	2305	Ser Phe Glu Arg Ile 2310	Asn Asp Val
Leu Glu 2315	His Val Lys His Phe	2320	Val Ile Asn Leu Ile 2325	Gly Asp Phe
Glu Val 2330	Ala Glu Lys Ile Asn	2335	Ala Phe Arg Ala Lys 2340	Val His Glu
Leu Ile 2345	Glu Arg Tyr Glu Val	2350	Asp Gln Gln Ile Gln 2355	Val Leu Met

Asp	Lys	Leu	Val	Glu	Leu	Ala	His	Gln	Tyr	Lys	Leu	Lys	Glu	Thr
2360						2365					2370			
Ile	Gln	Lys	Leu	Ser	Asn	Val	Leu	Gln	Gln	Val	Lys	Ile	Lys	Asp
2375						2380					2385			
Tyr	Phe	Glu	Lys	Leu	Val	Gly	Phe	Ile	Asp	Asp	Ala	Val	Lys	Lys
2390						2395					2400			
Leu	Asn	Glu	Leu	Ser	Phe	Lys	Thr	Phe	Ile	Glu	Asp	Val	Asn	Lys
2405						2410					2415			
Phe	Leu	Asp	Met	Leu	Ile	Lys	Lys	Leu	Lys	Ser	Phe	Asp	Tyr	His
2420						2425					2430			
Gln	Phe	Val	Asp	Glu	Thr	Asn	Asp	Lys	Ile	Arg	Glu	Val	Thr	Gln
2435						2440					2445			
Arg	Leu	Asn	Gly	Glu	Ile	Gln	Ala	Leu	Glu	Leu	Pro	Gln	Lys	Ala
2450						2455					2460			
Glu	Ala	Leu	Lys	Leu	Phe	Leu	Glu	Glu	Thr	Lys	Ala	Thr	Val	Ala
2465						2470					2475			
Val	Tyr	Leu	Glu	Ser	Leu	Gln	Asp	Thr	Lys	Ile	Thr	Leu	Ile	Ile
2480						2485					2490			
Asn	Trp	Leu	Gln	Glu	Ala	Leu	Ser	Ser	Ala	Ser	Leu	Ala	His	Met
2495						2500					2505			
Lys	Ala	Lys	Phe	Arg	Glu	Thr	Leu	Glu	Asp	Thr	Arg	Asp	Arg	Met
2510						2515					2520			
Tyr	Gln	Met	Asp	Ile	Gln	Gln	Glu	Leu	Gln	Arg	Tyr	Leu	Ser	Leu
2525						2530					2535			
Val	Gly	Gln	Val	Tyr	Ser	Thr	Leu	Val	Thr	Tyr	Ile	Ser	Asp	Trp
2540						2545					2550			
Trp	Thr	Leu	Ala	Ala	Lys	Asn	Leu	Thr	Asp	Phe	Ala	Glu	Gln	Tyr
2555						2560					2565			
Ser	Ile	Gln	Asp	Trp	Ala	Lys	Arg	Met	Lys	Ala	Leu	Val	Glu	Gln
2570						2575					2580			

Gly Phe Thr Val Pro Glu Ile Lys Thr Ile Leu Gly Thr Met Pro		
2585	2590	2595
Ala Phe Glu Val Ser Leu Gln Ala Leu Gln Lys Ala Thr Phe Gln		
2600	2605	2610
Thr Pro Asp Phe Ile Val Pro Leu Thr Asp Leu Arg Ile Pro Ser		
2615	2620	2625
Val Gln Ile Asn Phe Lys Asp Leu Lys Asn Ile Lys Ile Pro Ser		
2630	2635	2640
Arg Phe Ser Thr Pro Glu Phe Thr Ile Leu Asn Thr Phe His Ile		
2645	2650	2655
Pro Ser Phe Thr Ile Asp Phe Val Glu Met Lys Val Lys Ile Ile		
2660	2665	2670
Arg Thr Ile Asp Gln Met Leu Asn Ser Glu Leu Gln Trp Pro Val		
2675	2680	2685
Pro Asp Ile Tyr Leu Arg Asp Leu Lys Val Glu Asp Ile Pro Leu		
2690	2695	2700
Ala Arg Ile Thr Leu Pro Asp Phe Arg Leu Pro Glu Ile Ala Ile		
2705	2710	2715
Pro Glu Phe Ile Ile Pro Thr Leu Asn Leu Asn Asp Phe Gln Val		
2720	2725	2730
Pro Asp Leu His Ile Pro Glu Phe Gln Leu Pro His Ile Ser His		
2735	2740	2745
Thr Ile Glu Val Pro Thr Phe Gly Lys Leu Tyr Ser Ile Leu Lys		
2750	2755	2760
Ile Gln Ser Pro Leu Phe Thr Leu Asp Ala Asn Ala Asp Ile Gly		
2765	2770	2775
Asn Gly Thr Thr Ser Ala Asn Glu Ala Gly Ile Ala Ala Ser Ile		
2780	2785	2790
Thr Ala Lys Gly Glu Ser Lys Leu Glu Val Leu Asn Phe Asp Phe		
2795	2800	2805

Gln Ala	Asn Ala	Gln Leu	Ser	Asn Pro	Lys Ile	Asn	Pro Leu	Ala	
2810			2815			2820			
Leu Lys	Glu Ser	Val Lys	Phe	Ser Ser	Lys Tyr	Leu	Arg Thr	Glu	
2825			2830			2835			
His Gly	Ser Glu	Met Leu	Phe	Phe Gly	Asn Ala	Ile	Glu Gly	Lys	
2840			2845			2850			
Ser Asn	Thr Val	Ala Ser	Leu	His Thr	Glu Lys	Asn	Thr Leu	Glu	
2855			2860			2865			
Leu Ser	Asn Gly	Val Ile	Val	Lys Ile	Asn Asn	Gln	Leu Thr	Leu	
2870			2875			2880			
Asp Ser	Asn Thr	Lys Tyr	Phe	His Lys	Leu Asn	Ile	Pro Lys	Leu	
2885			2890			2895			
Asp Phe	Ser Ser	Gln Ala	Asp	Leu Arg	Asn Glu	Ile	Lys Thr	Leu	
2900			2905			2910			
Leu Lys	Ala Gly	His Ile	Ala	Trp Thr	Ser Ser	Gly	Lys Gly	Ser	
2915			2920			2925			
Trp Lys	Trp Ala	Cys Pro	Arg	Phe Ser	Asp Glu	Gly	Thr His	Glu	
2930			2935			2940			
Ser Gln	Ile Ser	Phe Thr	Ile	Glu Gly	Pro Leu	Thr	Ser Phe	Gly	
2945			2950			2955			
Leu Ser	Asn Lys	Ile Asn	Ser	Lys His	Leu Arg	Val	Asn Gln	Asn	
2960			2965			2970			
Leu Val	Tyr Glu	Ser Gly	Ser	Leu Asn	Phe Ser	Lys	Leu Glu	Ile	
2975			2980			2985			
Gln Ser	Gln Val	Asp Ser	Gln	His Val	Gly His	Ser	Val Leu	Thr	
2990			2995			3000			
Ala Lys	Gly Met	Ala Leu	Phe	Gly Glu	Gly Lys	Ala	Glu Phe	Thr	
3005			3010			3015			
Gly Arg	His Asp	Ala His	Leu	Asn Gly	Lys Val	Ile	Gly Thr	Leu	
3020			3025			3030			

Lys Asn	Ser Leu Phe Phe Ser	Ala Gln Pro Phe Glu	Ile Thr Ala
3035	3040	3045	
Ser Thr	Asn Asn Glu Gly Asn	Leu Lys Val Arg Phe	Pro Leu Arg
3050	3055	3060	
Leu Thr	Gly Lys Ile Asp Phe	Leu Asn Asn Tyr Ala	Leu Phe Leu
3065	3070	3075	
Ser Pro	Ser Ala Gln Gln Ala	Ser Trp Gln Val Ser	Ala Arg Phe
3080	3085	3090	
Asn Gln	Tyr Lys Tyr Asn Gln	Asn Phe Ser Ala Gly	Asn Asn Glu
3095	3100	3105	
Asn Ile	Met Glu Ala His Val	Gly Ile Asn Gly Glu	Ala Asn Leu
3110	3115	3120	
Asp Phe	Leu Asn Ile Pro Leu	Thr Ile Pro Glu Met	Arg Leu Pro
3125	3130	3135	
Tyr Thr	Ile Ile Thr Thr Pro	Pro Leu Lys Asp Phe	Ser Leu Trp
3140	3145	3150	
Glu Lys	Thr Gly Leu Lys Glu	Phe Leu Lys Thr Thr	Lys Gln Ser
3155	3160	3165	
Phe Asp	Leu Ser Val Lys Ala	Gln Tyr Lys Lys Asn	Lys His Arg
3170	3175	3180	
His Ser	Ile Thr Asn Pro Leu	Ala Val Leu Cys Glu	Phe Ile Ser
3185	3190	3195	
Gln Ser	Ile Lys Ser Phe Asp	Arg His Phe Glu Lys	Asn Arg Asn
3200	3205	3210	
Asn Ala	Leu Asp Phe Val Thr	Lys Ser Tyr Asn Glu	Thr Lys Ile
3215	3220	3225	
Lys Phe	Asp Lys Tyr Lys Ala	Glu Lys Ser His Asp	Glu Leu Pro
3230	3235	3240	
Arg Thr	Phe Gln Ile Pro Gly	Tyr Thr Val Pro Val	Val Asn Val
3245	3250	3255	

Glu Val 3260	Ser Pro Phe Thr Ile 3265	Glu Met Ser Ala Phe 3270	Gly Tyr Val
Phe Pro 3275	Lys Ala Val Ser Met 3280	Pro Ser Phe Ser Ile 3285	Leu Gly Ser
Asp Val 3290	Arg Val Pro Ser Tyr 3295	Thr Leu Ile Leu Pro 3300	Ser Leu Glu
Leu Pro 3305	Val Leu His Val Pro 3310	Arg Asn Leu Lys Leu 3315	Ser Leu Pro
Asp Phe 3320	Lys Glu Leu Cys Thr 3325	Ile Ser His Ile Phe 3330	Ile Pro Ala
Met Gly 3335	Asn Ile Thr Tyr Asp 3340	Phe Ser Phe Lys Ser 3345	Ser Val Ile
Thr Leu 3350	Asn Thr Asn Ala Glu 3355	Leu Phe Asn Gln Ser 3360	Asp Ile Val
Ala His 3365	Leu Leu Ser Ser Ser 3370	Ser Ser Val Ile Asp 3375	Ala Leu Gln
Tyr Lys 3380	Leu Glu Gly Thr Thr 3385	Arg Leu Thr Arg Lys 3390	Arg Gly Leu
Lys Leu 3395	Ala Thr Ala Leu Ser 3400	Leu Ser Asn Lys Phe 3405	Val Glu Gly
Ser His 3410	Asn Ser Thr Val Ser 3415	Leu Thr Thr Lys Asn 3420	Met Glu Val
Ser Val 3425	Ala Thr Thr Thr Lys 3430	Ala Gln Ile Pro Ile 3435	Leu Arg Met
Asn Phe 3440	Lys Gln Glu Leu Asn 3445	Gly Asn Thr Lys Ser 3450	Lys Pro Thr
Val Ser 3455	Ser Ser Met Glu Phe 3460	Lys Tyr Asp Phe Asn 3465	Ser Ser Met
Leu Tyr 3470	Ser Thr Ala Lys Gly 3475	Ala Val Asp His Lys 3480	Leu Ser Leu

Glu Ser	Leu Thr Ser Tyr Phe	Ser Ile Glu Ser Ser	Thr Lys Gly
3485	3490	3495	
Asp Val	Lys Gly Ser Val Leu	Ser Arg Glu Tyr Ser	Gly Thr Ile
3500	3505	3510	
Ala Ser	Glu Ala Asn Thr Tyr	Leu Asn Ser Lys Ser	Thr Arg Ser
3515	3520	3525	
Ser Val	Lys Leu Gln Gly Thr	Ser Lys Ile Asp Asp	Ile Trp Asn
3530	3535	3540	
Leu Glu	Val Lys Glu Asn Phe	Ala Gly Glu Ala Thr	Leu Gln Arg
3545	3550	3555	
Ile Tyr	Ser Leu Trp Glu His	Ser Thr Lys Asn His	Leu Gln Leu
3560	3565	3570	
Glu Gly	Leu Phe Phe Thr Asn	Gly Glu His Thr Ser	Lys Ala Thr
3575	3580	3585	
Leu Glu	Leu Ser Pro Trp Gln	Met Ser Ala Leu Val	Gln Val His
3590	3595	3600	
Ala Ser	Gln Pro Ser Ser Phe	His Asp Phe Pro Asp	Leu Gly Gln
3605	3610	3615	
Glu Val	Ala Leu Asn Ala Asn	Thr Lys Asn Gln Lys	Ile Arg Trp
3620	3625	3630	
Lys Asn	Glu Val Arg Ile His	Ser Gly Ser Phe Gln	Ser Gln Val
3635	3640	3645	
Glu Leu	Ser Asn Asp Gln Glu	Lys Ala His Leu Asp	Ile Ala Gly
3650	3655	3660	
Ser Leu	Glu Gly His Leu Arg	Phe Leu Lys Asn Ile	Ile Leu Pro
3665	3670	3675	
Val Tyr	Asp Lys Ser Leu Trp	Asp Phe Leu Lys Leu	Asp Val Thr
3680	3685	3690	
Thr Ser	Ile Gly Arg Arg Gln	His Leu Arg Val Ser	Thr Ala Phe
3695	3700	3705	

Val Tyr	Thr Lys Asn Pro Asn	Gly Tyr Ser Phe Ser	Ile Pro Val
3710	3715	3720	
Lys Val	Leu Ala Asp Lys Phe	Ile Ile Pro Gly Leu	Lys Leu Asn
3725	3730	3735	
Asp Leu	Asn Ser Val Leu Val	Met Pro Thr Phe His	Val Pro Phe
3740	3745	3750	
Thr Asp	Leu Gln Val Pro Ser	Cys Lys Leu Asp Phe	Arg Glu Ile
3755	3760	3765	
Gln Ile	Tyr Lys Lys Leu Arg	Thr Ser Ser Phe Ala	Leu Asn Leu
3770	3775	3780	
Pro Thr	Leu Pro Glu Val Lys	Phe Pro Glu Val Asp	Val Leu Thr
3785	3790	3795	
Lys Tyr	Ser Gln Pro Glu Asp	Ser Leu Ile Pro Phe	Phe Glu Ile
3800	3805	3810	
Thr Val	Pro Glu Ser Gln Leu	Thr Val Ser Gln Phe	Thr Leu Pro
3815	3820	3825	
Lys Ser	Val Ser Asp Gly Ile	Ala Ala Leu Asp Leu	Asn Ala Val
3830	3835	3840	
Ala Asn	Lys Ile Ala Asp Phe	Glu Leu Pro Thr Ile	Ile Val Pro
3845	3850	3855	
Glu Gln	Thr Ile Glu Ile Pro	Ser Ile Lys Phe Ser	Val Pro Ala
3860	3865	3870	
Gly Ile	Ala Ile Pro Ser Phe	Gln Ala Leu Thr Ala	Arg Phe Glu
3875	3880	3885	
Val Asp	Ser Pro Val Tyr Asn	Ala Thr Trp Ser Ala	Ser Leu Lys
3890	3895	3900	
Asn Lys	Ala Asp Tyr Val Glu	Thr Val Leu Asp Ser	Thr Cys Ser
3905	3910	3915	
Ser Thr	Val Gln Phe Leu Glu	Tyr Glu Leu Asn Val	Leu Gly Thr
3920	3925	3930	

His Lys	Ile Glu Asp Gly Thr	Leu Ala Ser Lys Thr	Lys Gly Thr
3935	3940	3945	
Phe Ala	His Arg Asp Phe Ser	Ala Glu Tyr Glu Glu	Asp Gly Lys
3950	3955	3960	
Tyr Glu	Gly Leu Gln Glu Trp	Glu Gly Lys Ala His	Leu Asn Ile
3965	3970	3975	
Lys Ser	Pro Ala Phe Thr Asp	Leu His Leu Arg Tyr	Gln Lys Asp
3980	3985	3990	
Lys Lys	Gly Ile Ser Thr Ser	Ala Ala Ser Pro Ala	Val Gly Thr
3995	4000	4005	
Val Gly	Met Asp Met Asp Glu	Asp Asp Asp Phe Ser	Lys Trp Asn
4010	4015	4020	
Phe Tyr	Tyr Ser Pro Gln Ser	Ser Pro Asp Lys Lys	Leu Thr Ile
4025	4030	4035	
Phe Lys	Thr Glu Leu Arg Val	Arg Glu Ser Asp Glu	Glu Thr Gln
4040	4045	4050	
Ile Lys	Val Asn Trp Glu Glu	Glu Ala Ala Ser Gly	Leu Leu Thr
4055	4060	4065	
Ser Leu	Lys Asp Asn Val Pro	Lys Ala Thr Gly Val	Leu Tyr Asp
4070	4075	4080	
Tyr Val	Asn Lys Tyr His Trp	Glu His Thr Gly Leu	Thr Leu Arg
4085	4090	4095	
Glu Val	Ser Ser Lys Leu Arg	Arg Asn Leu Gln Asp	His Ala Glu
4100	4105	4110	
Trp Val	Tyr Gln Gly Ala Ile	Arg Glu Ile Asp Asp	Ile Asp Glu
4115	4120	4125	
Arg Phe	Gln Lys Gly Ala Ser	Gly Thr Thr Gly Thr	Tyr Gln Glu
4130	4135	4140	
Trp Lys	Asp Lys Ala Gln Asn	Leu Tyr Gln Glu Leu	Leu Thr Gln
4145	4150	4155	

Glu Gly	Gln Ala Ser Phe Gln	Gly Leu Lys Asp Asn	Val Phe Asp
4160	4165	4170	
Gly Leu	Val Arg Val Thr Gln	Glu Phe His Met Lys	Val Lys His
4175	4180	4185	
Leu Ile	Asp Ser Leu Ile Asp	Phe Leu Asn Phe Pro	Arg Phe Gln
4190	4195	4200	
Phe Pro	Gly Lys Pro Gly Ile	Tyr Thr Arg Glu Glu	Leu Cys Thr
4205	4210	4215	
Met Phe	Ile Arg Glu Val Gly	Thr Val Leu Ser Gln	Val Tyr Ser
4220	4225	4230	
Lys Val	His Asn Gly Ser Glu	Ile Leu Phe Ser Tyr	Phe Gln Asp
4235	4240	4245	
Leu Val	Ile Thr Leu Pro Phe	Glu Leu Arg Lys His	Lys Leu Ile
4250	4255	4260	
Asp Val	Ile Ser Met Tyr Arg	Glu Leu Leu Lys Asp	Leu Ser Lys
4265	4270	4275	
Glu Ala	Gln Glu Val Phe Lys	Ala Ile Gln Ser Leu	Lys Thr Thr
4280	4285	4290	
Glu Val	Leu Arg Asn Leu Gln	Asp Leu Leu Gln Phe	Ile Phe Gln
4295	4300	4305	
Leu Ile	Glu Asp Asn Ile Lys	Gln Leu Lys Glu Met	Lys Phe Thr
4310	4315	4320	
Tyr Leu	Ile Asn Tyr Ile Gln	Asp Glu Ile Asn Thr	Ile Phe Asn
4325	4330	4335	
Asp Tyr	Ile Pro Tyr Val Phe	Lys Leu Leu Lys Glu	Asn Leu Cys
4340	4345	4350	
Leu Asn	Leu His Lys Phe Asn	Glu Phe Ile Gln Asn	Glu Leu Gln
4355	4360	4365	
Glu Ala	Ser Gln Glu Leu Gln	Gln Ile His Gln Tyr	Ile Met Ala
4370	4375	4380	

Leu Arg Glu Glu Tyr Phe Asp Pro Ser Ile Val Gly Trp Thr Val
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Lys Tyr Tyr Glu Leu Glu Glu Lys Ile Val Ser Leu Ile Lys Asn
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Leu Leu Val Ala Leu Lys Asp Phe His Ser Glu Tyr Ile Val Ser
4415 4420 4425

Ala Ser Asn Phe Thr Ser Gln Leu Ser Ser Gln Val Glu Gln Phe
4430 4435 4440

Leu His Arg Asn Ile Gln Glu Tyr Leu Ser Ile Leu Thr Asp Pro
4445 4450 4455

Asp Gly Lys Gly Lys Glu Lys Ile Ala Glu Leu Ser Ala Thr Ala
4460 4465 4470

Gln Glu Ile Ile Lys Ser Gln Ala Ile Ala Thr Lys Lys Ile Ile
4475 4480 4485

Ser Asp Tyr His Gln Gln Phe Arg Tyr Lys Leu Gln Asp Phe Ser
4490 4495 4500

Asp Gln Leu Ser Asp Tyr Tyr Glu Lys Phe Ile Ala Glu Ser Lys
4505 4510 4515

Arg Leu Ile Asp Leu Ser Ile Gln Asn Tyr His Thr Phe Leu Ile
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Tyr Ile Thr Glu Leu Leu Lys Lys Leu Gln Ser Thr Thr Val Met
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Met Lys Val Leu Trp Ala Ala Leu Leu Val Thr Phe Leu Ala Gly Cys
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Gln Ala Lys Val Glu Gln Ala Val Glu Thr Glu Pro Glu Pro Glu Leu

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Arg Gln Gln Thr Glu Trp Gln Ser Gly Gln Arg Trp Glu Leu Ala Leu	
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Gly Arg Phe Trp Asp Tyr Leu Arg Trp Val Gln Thr Leu Ser Glu Gln	
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Val Gln Glu Glu Leu Leu Ser Ser Gln Val Thr Gln Glu Leu Arg Ala	
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ctg atg gac gag acc atg aag gag ttg aag gcc tac aaa tcg gaa ctg	348
Leu Met Asp Glu Thr Met Lys Glu Leu Lys Ala Tyr Lys Ser Glu Leu	
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Glu Glu Gln Leu Thr Pro Val Ala Glu Glu Thr Arg Ala Arg Leu Ser	
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Lys Glu Leu Gln Ala Ala Gln Ala Arg Leu Gly Ala Asp Met Glu Asp	
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Val Cys Gly Arg Leu Val Gln Tyr Arg Gly Glu Val Gln Ala Met Leu	
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Gly Gln Ser Thr Glu Glu Leu Arg Val Arg Leu Ala Ser His Leu Arg	
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Lys Leu Arg Lys Arg Leu Leu Arg Asp Ala Asp Asp Leu Gln Lys Arg	
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Ser Ala Ile Arg Glu Arg Leu Gly Pro Leu Val Glu Gln Gly Arg Val	
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Arg Ala Ala Thr Val Gly Ser Leu Ala Gly Gln Pro Leu Gln Glu Arg	
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Ala Gln Ala Trp Gly Glu Arg Leu Arg Ala Arg Met Glu Glu Met Gly	
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Ser Arg Thr Arg Asp Arg Leu Asp Glu Val Lys Glu Gln Val Ala Glu	
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Val Arg Ala Lys Leu Glu Glu Gln Ala Gln Gln Ile Arg Leu Gln Ala	

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Glu	Ala	Phe	Gln	Ala	Arg	Leu	Lys	Ser	Trp	Phe	Glu	Pro	Leu	Val	Glu		
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Asp	Met	Gln	Arg	Gln	Trp	Ala	Gly	Leu	Val	Glu	Lys	Val	Gln	Ala	Ala		
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Gly Arg Phe Trp Asp Tyr Leu Arg Trp Val Gln Thr Leu Ser Glu Gln
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Val Gln Glu Glu Leu Leu Ser Ser Gln Val Thr Gln Glu Leu Arg Ala
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Leu Met Asp Glu Thr Met Lys Glu Leu Lys Ala Tyr Lys Ser Glu Leu
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Glu Glu Gln Leu Thr Pro Val Ala Glu Glu Thr Arg Ala Arg Leu Ser
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Lys Glu Leu Gln Ala Ala Gln Ala Arg Leu Gly Ala Asp Met Glu Asp
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130 135 140

Gly Gln Ser Thr Glu Glu Leu Arg Val Arg Leu Ala Ser His Leu Arg

145 150 155 160
 Lys Leu Arg Lys Arg Leu Leu Arg Asp Ala Asp Asp Leu Gln Lys Arg
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 Leu Ala Val Tyr Gln Ala Gly Ala Arg Glu Gly Ala Glu Arg Gly Leu
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 Ser Ala Ile Arg Glu Arg Leu Gly Pro Leu Val Glu Gln Gly Arg Val
 195 200 205
 Arg Ala Ala Thr Val Gly Ser Leu Ala Gly Gln Pro Leu Gln Glu Arg
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 Ala Gln Ala Trp Gly Glu Arg Leu Arg Ala Arg Met Glu Glu Met Gly
 225 230 235 240
 Ser Arg Thr Arg Asp Arg Leu Asp Glu Val Lys Glu Gln Val Ala Glu
 245 250 255
 Val Arg Ala Lys Leu Glu Glu Gln Ala Gln Gln Ile Arg Leu Gln Ala
 260 265 270
 Glu Ala Phe Gln Ala Arg Leu Lys Ser Trp Phe Glu Pro Leu Val Glu
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 Val Arg Ala Leu Ser Ile Val Leu Pro Ile Ala Thr Glu Leu Gly Leu
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 Trp Ser Arg Gly Gln Leu Cys Asp Arg Ala Cys Leu Ser Leu Arg Cys
 35 40 45
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Ser Ser Ser Ser Phe Ala Trp Gly Ser Ser Phe Tyr Gly Arg Thr Gly
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 Gly Leu Arg Thr Ser Thr Ala Ser Thr Leu Thr Thr Pro Ser Ile Arg
 65 70 75
 aga cca cag agg atg agg tcc aca ttt gcc aca acc agg acg gct aca 287
 Arg Pro Gln Arg Met Arg Ser Thr Phe Ala Thr Thr Arg Thr Ala Thr
 80 85 90 95
 gct acc cct cga gac aga tgg tca gtc tgg agg atg acg tgg cgt gaa 335
 Ala Thr Pro Arg Asp Arg Trp Ser Val Trp Arg Met Thr Trp Arg Glu
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 cat ctg cct gga gtc ccg ccc ctg ccc aga acc ctt cct gag acc tcg 383
 His Leu Pro Gly Val Pro Pro Leu Pro Arg Thr Leu Pro Glu Thr Ser
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 ccg gcc ttg ttt tat tca aag aca gag aag acc aaa gca ttg cct gcc 431
 Pro Ala Leu Phe Tyr Ser Lys Thr Glu Lys Thr Lys Ala Leu Pro Ala
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 Arg Ala Leu Phe Tyr Ile Phe Ile His Leu Gly Gly Arg Thr Gly Phe
 145 150 155
 gga cag tgc cca tgc aat ggc ttg ggt tgg gat ttt ggt ttc ttc ctt 527
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 Ser Cys Glu Gly

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 35 40 45

Ser Ser Ser Phe Ala Trp Gly Ser Ser Phe Tyr Gly Arg Thr Gly Gly
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Leu Arg Thr Ser Thr Ala Ser Thr Leu Thr Thr Pro Ser Ile Arg Arg
 65 70 75 80

Pro Gln Arg Met Arg Ser Thr Phe Ala Thr Thr Arg Thr Ala Thr Ala
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Thr Pro Arg Asp Arg Trp Ser Val Trp Arg Met Thr Trp Arg Glu His
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Leu Pro Gly Val Pro Pro Leu Pro Arg Thr Leu Pro Glu Thr Ser Pro
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Ala Leu Phe Tyr Ser Lys Thr Glu Lys Thr Lys Ala Leu Pro Ala Arg
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Ala Leu Phe Tyr Ile Phe Ile His Leu Gly Gly Arg Thr Gly Phe Gly
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Leu Leu Leu Trp Thr Arg Gly Thr Gln Gly Ser Glu Leu Asp Pro Lys
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Gly Gln His Val Cys Val Ala Ser Ser Pro Ser Ala Glu Leu Gln Cys
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Cys Ala Gly Trp Arg Gln Lys Asp Gln Glu Cys Thr Ile Pro Ile Cys
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Glu Gly Pro Asp Ala Cys Gln Lys Asp Glu Val Cys Val Lys Pro Gly
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Leu Cys Arg Cys Lys Pro Gly Phe Phe Gly Ala His Cys Ser Ser Arg
75 80 85

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Cys Pro Gly Gln Tyr Trp Gly Pro Asp Cys Arg Glu Ser Cys Pro Cys
90 95 100 105

cac ccg cac ggc cag tgc gag cca gcc acg ggc gcg tgc cag tgc cag 389
His Pro His Gly Gln Cys Glu Pro Ala Thr Gly Ala Cys Gln Cys Gln

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Trp	Trp	Ser	Ser	Thr	Cys	Arg	Arg	Pro	Cys	Gln	Cys	Asn	Thr	Ala	Ala					
	155					160					165									
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Ser	Phe	Gln	Lys	Gly	Gln	Ala	Glu	Ala	Lys	Val	Lys	Arg	Ala	Ile	Pro				
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Lys	Pro	Pro	Arg	Gln	Ala	Leu	Asn	Arg	Lys	Lys	Gly	Ser	Pro	Gly	Leu				
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gcc	tct	ggc	tct	gtc	ggc	cag	agc	ccc	aac	tca	gcc	cca	aaa	gct	ggg	2309			
Ala	Ser	Gly	Ser	Val	Gly	Gln	Ser	Pro	Asn	Ser	Ala	Pro	Lys	Ala	Gly				
750								755				760							
ctt	cct	ggg	gcc	aca	ggg	cct	atg	gca	gtc	aga	cca	gag	gaa	gcg	gtc	2357			
Leu	Pro	Gly	Ala	Thr	Gly	Pro	Met	Ala	Val	Arg	Pro	Glu	Glu	Ala	Val				
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Arg	Gly	Leu	Gly	Ala	Gly	Thr	Glu	Ser	Ser	Arg	Arg	Ala	Gln	Glu	Pro				
780								785				790							
gtc	tct	ggc	tgt	ggc	tcc	cca	gaa	cag	gat	ccc	cag	aag	cag	gct	gaa	2453			
Val	Ser	Gly	Cys	Gly	Ser	Pro	Glu	Gln	Asp	Pro	Gln	Lys	Gln	Ala	Glu				
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830

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35 40 45

Asp Gln Glu Cys Thr Ile Pro Ile Cys Glu Gly Pro Asp Ala Cys Gln
50 55 60

Lys Asp Glu Val Cys Val Lys Pro Gly Leu Cys Arg Cys Lys Pro Gly
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Phe Phe Gly Ala His Cys Ser Ser Arg Cys Pro Gly Gln Tyr Trp Gly
85 90 95

Pro Asp Cys Arg Glu Ser Cys Pro Cys His Pro His Gly Gln Cys Glu

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Cys Glu Phe Pro Cys Ala Cys Gly Pro His Gly Arg Cys Asp Pro Ala		
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Thr Gly Val Cys His Cys Glu Pro Gly Trp Trp Ser Ser Thr Cys Arg		
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Arg Cys Asn Cys His Gly Ser Pro Cys Glu Gln Asp Ser Gly Arg Cys		
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Ala Cys Arg Pro Gly Trp Trp Gly Pro Glu Cys Gln Gln Gln Cys Glu		
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Cys Val Arg Gly Arg Cys Ser Ala Ala Ser Gly Glu Cys Thr Cys Pro		
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Pro Gly Phe Arg Gly Ala Arg Cys Glu Leu Pro Cys Pro Ala Gly Ser		
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His Gly Val Gln Cys Ala His Ser Cys Gly Arg Cys Lys His Asn Glu		
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Pro Cys Ser Pro Asp Thr Gly Ser Cys Glu Ser Cys Glu Pro Gly Trp		
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Asn Gly Thr Gln Cys Gln Gln Pro Cys Leu Pro Gly Thr Phe Gly Glu		
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		300
Ser Cys Glu Gln Gln Cys Pro His Cys Arg His Gly Glu Ala Cys Glu		
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Pro Asp Thr Gly His Cys Gln Arg Cys Asp Pro Gly Trp Leu Gly Pro		
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Arg Cys Glu Asp Pro Cys Pro Thr Gly Thr Phe Gly Glu Asp Cys Gly		

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Leu Leu Phe Leu Gly Leu Ala Cys Cys Ala Cys Cys Cys Trp Ala Pro		
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Arg Ser Asp Leu Lys Asp Arg Pro Ala Arg Asp Gly Ala Thr Val Ser		
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Arg Met Lys Leu Gln Val Trp Gly Thr Leu Thr Ser Leu Gly Ser Thr		
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Leu Pro Cys Arg Ser Leu Ser Ser His Lys Leu Pro Trp Val Thr Val		
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Ser His His Asp Pro Glu Val Pro Phe Asn His Ser Phe Ile Glu Pro		
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Pro Ser Ala Gly Trp Ala Thr Asp Asp Ser Phe Ser Ser Asp Pro Glu		
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Gly Met Val Pro Val Ala Gln Ala Gly Ser Ser Glu Ala Ser Leu Ala		
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Ala Gly Ala Phe Pro Pro Pro Glu Asp Ala Ser Thr Pro Phe Ala Ile		
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Pro Arg Thr Ser Ser Leu Ala Arg Ala Lys Arg Pro Ser Val Ser Phe		

580	585	590
Ala Glu Gly Thr Lys Phe Ala Pro Gln Ser Arg Arg Ser Ser Gly Glu		
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Leu Ser Ser Pro Leu Arg Lys Pro Lys Arg Leu Ser Arg Gly Ala Gln		
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Ser Gly Pro Glu Gly Arg Glu Ala Glu Glu Ser Thr Gly Pro Asp Glu		
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Ala Glu Ala Pro Glu Ser Phe Pro Ala Ala Ala Ser Pro Gly Asp Ser		
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Ala Thr Gly His Arg Arg Pro Pro Leu Gly Ser Arg Thr Val Ala Glu		
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His Val Glu Ala Ile Glu Gly Ser Val Gln Glu Ser Ser Gly Pro Val		
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Thr Thr Ile Tyr Met Leu Ala Gly Lys Pro Arg Gly Ser Glu Gly Pro		
	690	700
Val Arg Ser Val Phe Arg His Phe Gly Ser Phe Gln Lys Gly Gln Ala		
705	710	715
Glu Ala Lys Val Lys Arg Ala Ile Pro Lys Pro Pro Arg Gln Ala Leu		
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Asn Arg Lys Lys Gly Ser Pro Gly Leu Ala Ser Gly Ser Val Gly Gln		
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Ser Pro Asn Ser Ala Pro Lys Ala Gly Leu Pro Gly Ala Thr Gly Pro		
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Met Ala Val Arg Pro Glu Glu Ala Val Arg Gly Leu Gly Ala Gly Thr		
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Glu Ser Ser Arg Arg Ala Gln Glu Pro Val Ser Gly Cys Gly Ser Pro		
785	790	795
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825

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ata tgt cgg att ggt tgt cag ttc aat tat caa gca tct gca acc tgc	96
Ile Cys Arg Ile Gly Cys Gln Phe Asn Tyr Gln Ala Ser Ala Thr Cys	
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aat tct gtt ggg gcg tct gtc gca act gta gtc acc gct gat aat cct	144
Asn Ser Val Gly Ala Ser Val Ala Thr Val Val Thr Ala Asp Asn Pro	
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cga cgt tca gtg tct ttc cct att tat tgt gca agc tta gca tat gca	192
Arg Arg Ser Val Ser Phe Pro Ile Tyr Cys Ala Ser Leu Ala Tyr Ala	
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Ser Ser Lys Tyr Asn Asn Ile Ser Ser Glu Thr Val Gly Ile Ala His	
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Leu Glu His Arg Gln Ser Leu Ala Lys Asp Phe Thr Cys Ser Asn Ala	
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Ser Gln Glu Thr Phe Gly Gln Arg Ser Phe Val Ile Leu Ala Glu Asn	
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aca aaa gac act gat gtg atg aaa agt tcc gtg gat aac gtt ttc aga	384
Thr Lys Asp Thr Asp Val Met Lys Ser Ser Val Asp Asn Val Phe Arg	
115 120 125	
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Asn Lys Asn Ser Ile Phe Tyr Gln Leu Ser Pro Phe Val Asn Ser Ala	
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cct cca cag cga tat gca aac ttt ttc gct gtt ctg aat aaa tgt tcc	480
Pro Pro Gln Arg Tyr Ala Asn Phe Phe Ala Val Leu Asn Lys Cys Ser	
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Glu Thr Ala Gln Thr Glu Gln Ser Ser Asp Tyr Gly Thr Phe Leu Thr	
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Lys Val Met Asn Val Thr Ser Lys Ser Gln Gln Arg Pro Asn Asp Pro	
180 185 190	
agt gat cct gtc aag gtc aca aat ttc ctg cct caa gca att gca gga	624
Ser Asp Pro Val Lys Val Thr Asn Phe Leu Pro Gln Ala Ile Ala Gly	
195 200 205	
gcg aac gcc tat tct gac att ctg ctt gtg att aat tat aac gtg tct	672

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Gln	Arg	Ser	Arg	Leu	Tyr	Ile	Leu	Phe	Val	Gln	Thr	Tyr	Phe	Asn	Tyr		
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Thr	Asp	Thr	Tyr	Tyr	Ala	Met	Asn	Lys	Leu	Ala	Ile	Ala	Ser	Gly	Gly		
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Val	Ala	Ile	Arg	Val	Asn	Thr	Tyr	Asp	Asp	Leu	Ser	Thr	Phe	Phe	Ala		
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Gln	Tyr	Phe	Pro	Leu	Leu	Val	Ala	Asn	Asp	Ile	Val	Ala	Lys	Ala	Tyr		
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Pro	Ile	Tyr	Asn	Gly	Asn	Ile	Thr	Ser	Ala	Leu	Asn	Asp	Cys	Lys	Tyr		
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Tyr	Ala	Asn	Thr	Lys	Asn	Tyr	Ala	Trp	Ala	Cys	Ser	Ile	Ser	Glu	Ile		
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Gln	Leu	Pro	Lys	Thr	Asp	Pro	Ser	Asn	Phe	Pro	Tyr	Leu	Thr	Leu	Gly	
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Glu	Ile	Ala	Ser	Asn	Gly	Thr	Val	Leu	Pro	Ala	Thr	Thr	Val	Leu	Phe	
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Thr	Arg	Lys	Ser	Gly	Ala	Ser	Cys	Phe	Tyr	Ser	His	Phe	Thr	Val	Leu	
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gat	gtc	tgc	tcc	caa	agc	aca	aca	att	gga	tat	cag	gca	cag	ttg	acc	2736
Asp	Val	Cys	Ser	Gln	Ser	Thr	Thr	Ile	Gly	Tyr	Gln	Ala	Gln	Leu	Thr	
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Cys	Phe	Lys	Thr	Ser	Tyr	Ala	Asn	Asn	Asp	Thr	Ser	Cys	His	Gly	His		
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Gly	Ser	Pro	Met	Ala	Thr	Cys	Ala	Cys	Asn	Ala	Asp	Phe	Gly	Gly	Ile		
945					950				955						960		
gat	tgc	act	gaa	ccg	gct	tgt	gta	aat	gga	ggt	gtt	cgg	gat	ggg	tcg	2928	
Asp	Cys	Thr	Glu	Pro	Ala	Cys	Val	Asn	Gly	Gly	Val	Arg	Asp	Gly	Ser		
				965					970						975		
gtt	tgt	cgt	tgt	cct	gta	aga	ttc	tat	ggg	ctt	cga	tgt	gaa	gaa	tgt	2976	
Val	Cys	Arg	Cys	Pro	Val	Arg	Phe	Tyr	Gly	Leu	Arg	Cys	Glu	Glu	Cys		
			980					985							990		
gag	tct	agg	caa	aat	ctg	cct	ata	aga	aaa	tta	tcc	aca	cct	aat	tac	3024	
Glu	Ser	Arg	Gln	Asn	Leu	Pro	Ile	Arg	Lys	Leu	Ser	Thr	Pro	Asn	Tyr		
		995					1000					1005					
gga	caa	att	act	gac	aaa	tta	ctg	gta	aag	aaa	ttc	att	cag	ttc		3069	
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Pro	Phe	Glu	Ser	Glu	Pro	Ala	Ser	Ser	Thr	Val	Ser	Val	Ile	Thr			
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tca	act	act	atg	ctg	cct	tct	acg	tca	act	gtt	gct	cca	agc	aca		3159	
Ser	Thr	Thr	Met	Leu	Pro	Ser	Thr	Ser	Thr	Val	Ala	Pro	Ser	Thr			
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agc	caa	tca	aca	ata	gtt	tcc	act	gtt	act	aca	cag	tca	cca	agt		3204	
Ser	Gln	Ser	Thr	Ile	Val	Ser	Thr	Val	Thr	Thr	Gln	Ser	Pro	Ser			
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cct	tca	aca	aca	gct	cca	aaa	caa	gtc	cga	gct	gct	gca	ttc	att		3249	
Pro	Ser	Thr	Thr	Ala	Pro	Lys	Gln	Val	Arg	Ala	Ala	Ala	Phe	Ile			
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att	gac	tgc	atg	gga	act	gat	gat	tat	gct	ttc	aat	cag	aca	ttc		3294	
Ile	Asp	Cys	Met	Gly	Thr	Asp	Asp	Tyr	Ala	Phe	Asn	Gln	Thr	Phe			
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aaa	tcg	att	gca	cag	tac	ttc	aag	aca	ttt	ggc	tat	agc	cat	tac		3339	
Lys	Ser	Ile	Ala	Gln	Tyr	Phe	Lys	Thr	Phe	Gly	Tyr	Ser	His	Tyr			
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atc	atg	tta	acc	aat	aat	ttg	aat	gga	agt	tta	caa	ttg	aac	aat		3384	
Ile	Met	Leu	Thr	Asn	Asn	Leu	Asn	Gly	Ser	Leu	Gln	Leu	Asn	Asn			
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gga	agt	tta	cta	ttt	gaa	gat	ttc	caa	caa	tat	tca	gat	gag	agt		3429	
Gly	Ser	Leu	Leu	Phe	Glu	Asp	Phe	Gln	Gln	Tyr	Ser	Asp	Glu	Ser			
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Met	Ile	Met	Ser	Lys	Leu	Pro	Leu	Tyr	Trp	Ser	Leu	Arg	Ala	Thr			
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cca	agt	aga	acc	gct	agc	gtc	agc	aac	gcg	ctc	agt	aag	att	ctt		3519	

Pro	Ser	Arg	Thr	Ala	Ser	Val	Ser	Asn	Ala	Leu	Ser	Lys	Ile	Leu	
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gca	agt	tac	aat	aga	aac	ggt	aca	gag	ttc	aaa	aac	tct	gta	agc	3564
Ala	Ser	Tyr	Asn	Arg	Asn	Gly	Thr	Glu	Phe	Lys	Asn	Ser	Val	Ser	
	1175					1180					1185				
atg	aat	att	ttt	tat	gca	act	caa	ata	ggg	ctg	ggc	gat	gag	gat	3609
Met	Asn	Ile	Phe	Tyr	Ala	Thr	Gln	Ile	Gly	Leu	Gly	Asp	Glu	Asp	
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cca	act	gca	gca	ggc	tta	gaa	gtt	ttc	aac	aag	agc	gcg	att	gta	3654
Pro	Thr	Ala	Ala	Gly	Leu	Glu	Val	Phe	Asn	Lys	Ser	Ala	Ile	Val	
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tat	tct	gca	ttc	gca	aaa	aat	gcc	aac	cag	aca	att	gtg	act	tct	3699
Tyr	Ser	Ala	Phe	Ala	Lys	Asn	Ala	Asn	Gln	Thr	Ile	Val	Thr	Ser	
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ctt	caa	aaa	ttc	agt	acc	gac	gta	acc	act	gct	aga	gat	tat	tac	3744
Leu	Gln	Lys	Phe	Ser	Thr	Asp	Val	Thr	Thr	Ala	Arg	Asp	Tyr	Tyr	
	1235					1240					1245				
agt	ggt	ctt	tct	gat	atg	tat	gaa	agc	act	caa	ccc	cag	ggt	tcg	3789
Ser	Gly	Leu	Ser	Asp	Met	Tyr	Glu	Ser	Thr	Gln	Pro	Gln	Gly	Ser	
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aat	gag	ctc	cct	cca	aaa	ccg	gat	caa	ctt	agt	tgt	gtg	tac	ggc	3834
Asn	Glu	Leu	Pro	Pro	Lys	Pro	Asp	Gln	Leu	Ser	Cys	Val	Tyr	Gly	
	1265					1270					1275				
ctg	caa	tcg	aat	atc	aaa	att	gca	att	gat	aga	tcc	aac	tcg	tca	3879
Leu	Gln	Ser	Asn	Ile	Lys	Ile	Ala	Ile	Asp	Arg	Ser	Asn	Ser	Ser	
	1280					1285					1290				
aac	cca	gag	gtt	aac	aca	att	atg	aat	aat	ttc	ctt	gtc	aat	ttc	3924
Asn	Pro	Glu	Val	Asn	Thr	Ile	Met	Asn	Asn	Phe	Leu	Val	Asn	Phe	
	1295					1300					1305				
cgt	ctt	gga	ttt	aat	tat	att	gaa	aat	gat	gac	aac	aga	tgc	ggg	3969
Arg	Leu	Gly	Phe	Asn	Tyr	Ile	Glu	Asn	Asp	Asp	Asn	Arg	Cys	Gly	
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gat	aag	tta	cca	gaa	ttt	tat	acc	gga	cga	act	gca	tta	acg	gcg	4014
Asp	Lys	Leu	Pro	Glu	Phe	Tyr	Thr	Gly	Arg	Thr	Ala	Leu	Thr	Ala	
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ttc	ccg	tat	tat	gat	gcc	att	gca	aaa	ata	gca	aca	ttt	tgt	cca	4059
Phe	Pro	Tyr	Tyr	Asp	Ala	Ile	Ala	Lys	Ile	Ala	Thr	Phe	Cys	Pro	
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tct	caa	tac	act	tcg	atg	cta	tca	ttc	caa	gtc	gtc	gga	agc	caa	4104
Ser	Gln	Tyr	Thr	Ser	Met	Leu	Ser	Phe	Gln	Val	Val	Gly	Ser	Gln	
	1355					1360					1365				
tta	cag	cca	aac	ttc	acc	gat	aaa	tat	gtc	aaa	gtc	att	agc	aag	4149
Leu	Gln	Pro	Asn	Phe	Thr	Asp	Lys	Tyr	Val	Lys	Val	Ile	Ser	Lys	
	1370					1375					1380				
aac	att	aac	agt	gcc	gat	tgt	tcg	tgc	aac	aga	ttc	aac	gac	act	4194

Asn Ile 1385	Asn Ser Ala Asp Cys 1390	Ser Cys Asn Arg Phe 1395	Asn Asp Thr	
aac act 1400	gcg aag ttt atc att 1405	tgg atg cct cgt tct 1410	gca gcg ccc Ala Ala Pro	4239
gac act 1415	gat gat gat tat tta 1420	acc ttg ctc aaa ctc 1425	aac acc aca Asn Thr Thr	4284
aat gca 1430	tat cac ttt gtc gtt 1435	cca ttt tac gat agt 1440	gct gat aac Ala Asp Asn	4329
agt acc 1445	gat ttg tac tac cag 1450	att ctt gtg aag caa 1455	gca gga ccc Ala Gly Pro	4374
gaa ggt 1460	ccc gat tat tat tgg 1465	tta cca aat gca gtt 1470	aat gct aca Asn Ala Thr	4419
aat ttg 1475	caa acg aat gta ata 1480	aat att cta tac gag 1485	aag ctt tgc Lys Leu Cys	4464
caa act 1490	gcc ggt gtt gac cca 1495	aca gca atc cca cca 1500	taa	4503

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136

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Ile Cys Arg Ile Gly Cys Gln Phe Asn Tyr Gln Ala Ser Ala Thr Cys
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Asn Ser Val Gly Ala Ser Val Ala Thr Val Val Thr Ala Asp Asn Pro
35 40 45

Arg Arg Ser Val Ser Phe Pro Ile Tyr Cys Ala Ser Leu Ala Tyr Ala
50 55 60

Ser Ser Lys Tyr Asn Asn Ile Ser Ser Glu Thr Val Gly Ile Ala His
65 70 75 80

Leu Glu His Arg Gln Ser Leu Ala Lys Asp Phe Thr Cys Ser Asn Ala
85 90 95

Ser Gln Glu Thr Phe Gly Gln Arg Ser Phe Val Ile Leu Ala Glu Asn

100	105	110
Thr Lys Asp Thr Asp Val Met Lys Ser Ser Val Asp Asn Val Phe Arg 115 120 125		
Asn Lys Asn Ser Ile Phe Tyr Gln Leu Ser Pro Phe Val Asn Ser Ala 130 135 140		
Pro Pro Gln Arg Tyr Ala Asn Phe Phe Ala Val Leu Asn Lys Cys Ser 145 150 155 160		
Glu Thr Ala Gln Thr Glu Gln Ser Ser Asp Tyr Gly Thr Phe Leu Thr 165 170 175		
Lys Val Met Asn Val Thr Ser Lys Ser Gln Gln Arg Pro Asn Asp Pro 180 185 190		
Ser Asp Pro Val Lys Val Thr Asn Phe Leu Pro Gln Ala Ile Ala Gly 195 200 205		
Ala Asn Ala Tyr Ser Asp Ile Leu Leu Val Ile Asn Tyr Asn Val Ser 210 215 220		
Thr Ile Thr Asp Asn Asp Ala Thr Glu Ile Lys Ser Ala Leu Glu Lys 225 230 235 240		
Gln Arg Ser Arg Leu Tyr Ile Leu Phe Val Gln Thr Tyr Phe Asn Tyr 245 250 255		
Thr Asp Thr Tyr Tyr Ala Met Asn Lys Leu Ala Ile Ala Ser Gly Gly 260 265 270		
Val Ala Ile Arg Val Asn Thr Tyr Asp Asp Leu Ser Thr Phe Phe Ala 275 280 285		
Gln Tyr Phe Pro Leu Leu Val Ala Asn Asp Ile Val Ala Lys Ala Tyr 290 295 300		
Ala Glu Asn Pro Arg Pro Gly Val Ala Leu Asn Asn Val Asn Leu Leu 305 310 315 320		
Ala Gln Gln Tyr Val Leu Leu Val Thr Asn Glu Asp Ser Leu Gly Asp 325 330 335		
Gly Pro Val Pro Ala Ser Val Thr Val Thr Gly Ile Asn Val Thr Gln		

340	345	350
Leu Pro Thr Ile Gly Glu Leu Gln Leu Phe Thr Leu Ile Pro Glu Lys 355 360 365		
Ala Gly Lys Phe Thr Pro Leu Phe Tyr Ser Ser Ser Ser Phe Asp Asp 370 375 380		
Gly Ser Lys Ile Thr Ile Thr Tyr Ser Asp Ala Thr Asn Pro Ala Asn 385 390 395 400		
Pro Ile Tyr Asn Gly Asn Ile Thr Ser Ala Leu Asn Asp Cys Lys Tyr 405 410 415		
Tyr Ala Asn Thr Lys Asn Tyr Ala Trp Ala Cys Ser Ile Ser Glu Ile 420 425 430		
Ala Leu Leu Leu Gln Phe Ser Met Arg Asn Ile Gln Ile Asp Arg Val 435 440 445		
Leu Asn Gly Glu Thr Ile Ser Arg Thr Phe Pro Ile Thr Cys Leu Gly 450 455 460		
Ala Asp Val Gly Asp Cys Leu Asn Gly Gly Asn Leu Thr Asp Ala Gly 465 470 475 480		
Ser Cys Ile Cys Pro Leu Gln Trp Thr Gly Thr Asn Cys Gln Ala Pro 485 490 495		
Gln Cys Leu Asn Gly Gly Thr Leu Lys Thr Asp Asp Thr Cys Ala Cys 500 505 510		
Leu Asp Ser Phe Lys Gly Asp Phe Cys Glu Thr Ser Thr Ser Val Cys 515 520 525		
Ala Gly Ala Pro Thr Ser Pro Asp Tyr Arg Ser Glu Leu Ser Ser Leu 530 535 540		
Val Ile Val Ala Asp Val Asn Ala Leu Ser Thr Ser Ser Leu Ser Asn 545 550 555 560		
Thr Val Pro Gly Ile Thr Gly Val Pro Ile Thr Val Ile Leu Tyr Gly 565 570 575		
Asp Gly Asn Ala Pro Arg Ile Val Gln Ser Thr Thr Asn Ser Glu His		

580	585	590
Leu Ser Glu Val Leu Gly Ala Pro Thr Gly Thr Thr Thr Ser Pro Ser		
595	600	605
Ser Thr Ala Ser Pro Ala Pro Ser Ala Ser Asp Met Tyr Lys Ala Leu		
610	615	620
Asn Leu Ala Leu Asp Asn Gln Leu Thr Asp Arg Ala Phe Val Ile Val		
625	630	635 640
Tyr Thr Ser Asn Ser Asn Val Thr Ile Asp Pro Asp Phe Leu Ile Arg		
	645	650 655
Leu Ala Val Arg Arg Ala Glu Val Arg Val Leu Ser Thr Ser Gly Thr		
	660	665 670
Glu Ser Gln Asn Ser Ile Thr Leu Ser Leu Val Gly Asn Gly Ile Pro		
	675	680 685
Ile Ala Ile Asn Gly Ala Lys Asp Phe Glu Asn Tyr Leu Thr Tyr Tyr		
	690	695 700
Val Val Pro Leu Phe Gln Ser Leu Gln Tyr Gln Val Asn Thr Pro Gln		
705	710	715 720
Arg Val Phe Asn Val Phe Gln Thr Gly Gln Phe Tyr Asn Ser Thr Gln		
	725	730 735
Ile Ser Ile Pro Ala Asp Ser Thr Phe Asp Asn Ala Lys Pro Asn Leu		
	740	745 750
Phe Val His Val Tyr Glu Gly Arg Ile Asn Tyr Ser Asp Pro Ser Thr		
	755	760 765
Asn Gly Asn Glu Val Gly Asn Ser Thr Ile Tyr Phe Leu Pro Tyr Asp		
	770	775 780
Pro Thr Lys Pro Ile Asn Leu Ile Val Asn Asn Asn Gly Thr Thr Gly		
785	790	795 800
Tyr Tyr Ala Ile Glu Val Ile Gly Tyr Leu Lys Thr Ser Tyr Gly Phe		
	805	810 815
Asn Ile Asp Asn Ala Asn Gly Ser Asn Glu Asn Leu Asn Ser Gly Val		

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Val Tyr Asn Gln Gln Asn Thr Leu Asn Ile Tyr Ser Ala Pro Phe Ser		
835	840	845
Gln Leu Pro Lys Thr Asp Pro Ser Asn Phe Pro Tyr Leu Thr Leu Gly		
850	855	860
Glu Ile Ala Ser Asn Gly Thr Val Leu Pro Ala Thr Thr Val Leu Phe		
865	870	875
Thr Arg Lys Ser Gly Ala Ser Cys Phe Tyr Ser His Phe Thr Val Leu		
	885	890
Asp Val Cys Ser Gln Ser Thr Thr Ile Gly Tyr Gln Ala Gln Leu Thr		
	900	905
Thr Arg Thr Ser Thr Leu Thr Asn Arg Ile Gln Gln Phe Val Leu Thr		
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Cys Phe Lys Thr Ser Tyr Ala Asn Asn Asp Thr Ser Cys His Gly His		
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Gly Ser Pro Met Ala Thr Cys Ala Cys Asn Ala Asp Phe Gly Gly Ile		
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Asp Cys Thr Glu Pro Ala Cys Val Asn Gly Gly Val Arg Asp Gly Ser		
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Val Cys Arg Cys Pro Val Arg Phe Tyr Gly Leu Arg Cys Glu Glu Cys		
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Glu Ser Arg Gln Asn Leu Pro Ile Arg Lys Leu Ser Thr Pro Asn Tyr		
	995	1000
Gly Gln Ile Thr Asp Lys Leu Leu Val Lys Lys Phe Ile Gln Phe		
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Pro Phe Glu Ser Glu Pro Ala Ser Ser Thr Val Ser Val Ile Thr		
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Ser Thr Thr Met Leu Pro Ser Thr Ser Thr Val Ala Pro Ser Thr		
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Ser Gln Ser Thr Ile Val Ser Thr Val Thr Thr Gln Ser Pro Ser		

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Pro Ser Thr Thr Ala Pro Lys Gln Val Arg Ala Ala Ala Phe Ile				
1070		1075		1080
Ile Asp Cys Met Gly Thr Asp Asp Tyr Ala Phe Asn Gln Thr Phe				
1085		1090		1095
Lys Ser Ile Ala Gln Tyr Phe Lys Thr Phe Gly Tyr Ser His Tyr				
1100		1105		1110
Ile Met Leu Thr Asn Asn Leu Asn Gly Ser Leu Gln Leu Asn Asn				
1115		1120		1125
Gly Ser Leu Leu Phe Glu Asp Phe Gln Gln Tyr Ser Asp Glu Ser				
1130		1135		1140
Met Ile Met Ser Lys Leu Pro Leu Tyr Trp Ser Leu Arg Ala Thr				
1145		1150		1155
Pro Ser Arg Thr Ala Ser Val Ser Asn Ala Leu Ser Lys Ile Leu				
1160		1165		1170
Ala Ser Tyr Asn Arg Asn Gly Thr Glu Phe Lys Asn Ser Val Ser				
1175		1180		1185
Met Asn Ile Phe Tyr Ala Thr Gln Ile Gly Leu Gly Asp Glu Asp				
1190		1195		1200
Pro Thr Ala Ala Gly Leu Glu Val Phe Asn Lys Ser Ala Ile Val				
1205		1210		1215
Tyr Ser Ala Phe Ala Lys Asn Ala Asn Gln Thr Ile Val Thr Ser				
1220		1225		1230
Leu Gln Lys Phe Ser Thr Asp Val Thr Thr Ala Arg Asp Tyr Tyr				
1235		1240		1245
Ser Gly Leu Ser Asp Met Tyr Glu Ser Thr Gln Pro Gln Gly Ser				
1250		1255		1260
Asn Glu Leu Pro Pro Lys Pro Asp Gln Leu Ser Cys Val Tyr Gly				
1265		1270		1275
Leu Gln Ser Asn Ile Lys Ile Ala Ile Asp Arg Ser Asn Ser Ser				

1280		1285		1290
Asn Pro	Glu Val Asn Thr	Ile Met Asn Asn Phe	Leu Val Asn Phe	
1295		1300	1305	
Arg Leu	Gly Phe Asn Tyr	Ile Glu Asn Asp Asp	Asn Arg Cys Gly	
1310		1315	1320	
Asp Lys	Leu Pro Glu Phe	Tyr Thr Gly Arg Thr	Ala Leu Thr Ala	
1325		1330	1335	
Phe Pro	Tyr Tyr Asp Ala	Ile Ala Lys Ile Ala	Thr Phe Cys Pro	
1340		1345	1350	
Ser Gln	Tyr Thr Ser Met	Leu Ser Phe Gln Val	Val Gly Ser Gln	
1355		1360	1365	
Leu Gln	Pro Asn Phe Thr	Asp Lys Tyr Val Lys	Val Ile Ser Lys	
1370		1375	1380	
Asn Ile	Asn Ser Ala Asp	Cys Ser Cys Asn Arg	Phe Asn Asp Thr	
1385		1390	1395	
Asn Thr	Ala Lys Phe Ile	Ile Trp Met Pro Arg	Ser Ala Ala Pro	
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Val Thr	Asp Asp Asp Tyr	Leu Thr Leu Leu Lys	Leu Asn Thr Thr	
1415		1420	1425	
Asn Ala	Tyr His Phe Val	Val Pro Phe Tyr Asp	Ser Ala Asp Asn	
1430		1435	1440	
Ser Thr	Asp Leu Tyr Tyr	Gln Ile Leu Val Lys	Gln Ala Gly Pro	
1445		1450	1455	
Glu Gly	Pro Asp Tyr Tyr	Trp Leu Pro Asn Ala	Val Asn Ala Thr	
1460		1465	1470	
Asn Leu	Gln Thr Asn Val	Ile Asn Ile Leu Tyr	Glu Lys Leu Cys	
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Ala Ala Ser His Ile Tyr Gln Asn

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caa ttt gtt caa atg atc ctc aat tca ctt att aac aag tca aaa tct 160

Gln Phe Val Gln Met Ile Leu Asn Ser Leu Ile Asn Lys Ser Lys Ser

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15

20

tct atg ttc caa gtc aga act ttg aga gaa ctg tta tgg ggc tat agg 208

Ser Met Phe Gln Val Arg Thr Leu Arg Glu Leu Leu Trp Gly Tyr Arg

25

30

35

40

gat cca ttt ttg agt ttg gtt ccg tac cct gtt act acc aca gtt ggt 256

Asp Pro Phe Leu Ser Leu Val Pro Tyr Pro Val Thr Thr Thr Val Gly

45

50

55

ctg ttt tat cct gtaagtaacca aatatgaatg gcaatattat tacattttaa 308

Leu Phe Tyr Pro

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t 369

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Ser Leu Ile Asn Lys Ser Lys Ser Ser Met Phe Gln Val Arg Thr Leu

20

25

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Arg Glu Leu Leu Trp Gly Tyr Arg Asp Pro Phe Leu Ser Leu Val Pro

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Tyr Pro Val Thr Thr Thr Val Gly Leu Phe Tyr Pro

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Leu Leu Leu Trp Thr Arg Gly Thr Gln Gly Ser Glu Leu Asp Pro Lys

10

15

20

25

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Gly Gln His Val Cys Val Ala Ser Ser Pro Ser Ala Glu Leu Gln Cys	
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tgc gca ggc tgg agg cag aag gat caa gaa tgc acc atc ccc atc tgt	197
Cys Ala Gly Trp Arg Gln Lys Asp Gln Glu Cys Thr Ile Pro Ile Cys	
45 50 55	
gag ggg ccg gac gcc tgc cag aaa gac gag gtg tgt gtg aag ccg ggc	245
Glu Gly Pro Asp Ala Cys Gln Lys Asp Glu Val Cys Val Lys Pro Gly	
60 65 70	
ctc tgt cga tgc aag cct gga ttc ttt ggg gcc cac tgc agc tcc cgc	293
Leu Cys Arg Cys Lys Pro Gly Phe Phe Gly Ala His Cys Ser Ser Arg	
75 80 85	
tgc ccg ggc cag tac tgg ggc ccc gac tgc cgt gag agc tgc ccc tgc	341
Cys Pro Gly Gln Tyr Trp Gly Pro Asp Cys Arg Glu Ser Cys Pro Cys	
90 95 100 105	
cac ccg cac ggc cag tgc gag cca gcc acg ggc gcg tgc cag tgc cag	389
His Pro His Gly Gln Cys Glu Pro Ala Thr Gly Ala Cys Gln Cys Gln	
110 115 120	
gcc gac cgc tgg gga gcc cgc tgc gag ttc ccg tgc gcc tgc ggc ccc	437
Ala Asp Arg Trp Gly Ala Arg Cys Glu Phe Pro Cys Ala Cys Gly Pro	
125 130 135	
cac ggg cgc tgc gac ccc gcg acc ggc gtg tgc cac tgc gaa ccc ggc	485
His Gly Arg Cys Asp Pro Ala Thr Gly Val Cys His Cys Glu Pro Gly	
140 145 150	
tgg tgg tcg tcc acg tgc cgc cgc ccg tgc cag tgc aac acc gcg gcg	533
Trp Trp Ser Ser Thr Cys Arg Arg Pro Cys Gln Cys Asn Thr Ala Ala	
155 160 165	
gcg cgc tgc gag cag gcc acg ggc gcc tgc gtg tgc aag ccg ggc tgg	581
Ala Arg Cys Glu Gln Ala Thr Gly Ala Cys Val Cys Lys Pro Gly Trp	
170 175 180 185	
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Trp Gly Arg Arg Cys Ser Phe Arg Cys Asn Cys His Gly Ser Pro Cys	
190 195 200	
gag cag gac tcc ggc cgc tgc gcc tgc cgg ccg ggc tgg tgg ggt ccc	677
Glu Gln Asp Ser Gly Arg Cys Ala Cys Arg Pro Gly Trp Trp Gly Pro	
205 210 215	
gaa tgc cag cag cag tgc gag tgt gtg cgg ggc cgc tgc agc gcc gcc	725
Glu Cys Gln Gln Gln Cys Glu Cys Val Arg Gly Arg Cys Ser Ala Ala	
220 225 230	
tcc ggc gag tgc acc tgc ccg ccc ggc ttc cgc gga gcg cgc tgc gag	773
Ser Gly Glu Cys Thr Cys Pro Pro Gly Phe Arg Gly Ala Arg Cys Glu	
235 240 245	
ctg ccc tgc ccg gca ggc agc cac ggg gtg cag tgc gca cac agc tgt	821
Leu Pro Cys Pro Ala Gly Ser His Gly Val Gln Cys Ala His Ser Cys	
250 255 260 265	

ggc cgc tgc aaa cac aat gag ccg tgc tct cca gac aca ggc agc tgt	869
Gly Arg Cys Lys His Asn Glu Pro Cys Ser Pro Asp Thr Gly Ser Cys	
270 275 280	
gag tcc tgc gag ccg ggc tgg aac ggg acc cag tgc cag cag ccc tgc	917
Glu Ser Cys Glu Pro Gly Trp Asn Gly Thr Gln Cys Gln Gln Pro Cys	
285 290 295	
ctg cct ggc acc ttt ggc gag agc tgc gaa cag cag tgc cct cac tgt	965
Leu Pro Gly Thr Phe Gly Glu Ser Cys Glu Gln Gln Cys Pro His Cys	
300 305 310	
cga cat ggg gag gcc tgt gag cca gat act ggc cac tgt cag cgc tgt	1013
Arg His Gly Glu Ala Cys Glu Pro Asp Thr Gly His Cys Gln Arg Cys	
315 320 325	
gac cct ggc tgg ctg ggg ccc agg tgt gaa gac ccc tgc ccc act ggt	1061
Asp Pro Gly Trp Leu Gly Pro Arg Cys Glu Asp Pro Cys Pro Thr Gly	
330 335 340 345	
acc ttt ggg gaa gac tgt ggc tct acc tgc ccc acc tgt gtt cag ggg	1109
Thr Phe Gly Glu Asp Cys Gly Ser Thr Cys Pro Thr Cys Val Gln Gly	
350 355 360	
tcc tgt gat act gtg aca ggg gac tgt gtc tgc agt gcc ggc tac tgg	1157
Ser Cys Asp Thr Val Thr Gly Asp Cys Val Cys Ser Ala Gly Tyr Trp	
365 370 375	
ggg ccc agc tgc aac gcc tcc tgc cca gcc ggt ttc cat gga aac aac	1205
Gly Pro Ser Cys Asn Ala Ser Cys Pro Ala Gly Phe His Gly Asn Asn	
380 385 390	
tgc tca gtt cct tgt gaa tgc cca gag gga ctc tgc cac cct gtc tct	1253
Cys Ser Val Pro Cys Glu Cys Pro Glu Gly Leu Cys His Pro Val Ser	
395 400 405	
ggg tcc tgc cag cca ggc tct ggc agt cgg gac act gcc ctc atc gcg	1301
Gly Ser Cys Gln Pro Gly Ser Gly Ser Arg Asp Thr Ala Leu Ile Ala	
410 415 420 425	
ggc agc ctt gtg cct ctg ctg ctg ctc ttc ctg ggc ctt gcc tgc tgt	1349
Gly Ser Leu Val Pro Leu Leu Leu Leu Phe Leu Gly Leu Ala Cys Cys	
430 435 440	
gcc tgc tgc tgc tgg gcc ccc cga tca gac ctc aag gac agg cca gcg	1397
Ala Cys Cys Cys Trp Ala Pro Arg Ser Asp Leu Lys Asp Arg Pro Ala	
445 450 455	
aga gat gga gct acc gtg tcc agg atg aag ctg cag gtc tgg ggg aca	1445
Arg Asp Gly Ala Thr Val Ser Arg Met Lys Leu Gln Val Trp Gly Thr	
460 465 470	
ctg acc agc ttg ggc tcc acg ctg ccc tgc cgt tcc ctc agc tcc cac	1493
Leu Thr Ser Leu Gly Ser Thr Leu Pro Cys Arg Ser Leu Ser Ser His	
475 480 485	
aag cta ccc tgg gtg aca gtc tca cat cac gac ccg gag gtc ccc ttc	1541
Lys Leu Pro Trp Val Thr Val Ser His His Asp Pro Glu Val Pro Phe	
490 495 500 505	

aac cac agc ttc atc gag ccg ccc tct gcc ggc tgg gcc act gat gac	1589
Asn His Ser Phe Ile Glu Pro Pro Ser Ala Gly Trp Ala Thr Asp Asp	
510 515 520	
tcc ttc tca tcc gat cct gag tct gga gag gca gat gag gtt cct gcc	1637
Ser Phe Ser Ser Asp Pro Glu Ser Gly Glu Ala Asp Glu Val Pro Ala	
525 530 535	
tac tgt gtg cca ccc caa gaa ggg atg gtc cct gtg gcc cag gca ggg	1685
Tyr Cys Val Pro Pro Gln Glu Gly Met Val Pro Val Ala Gln Ala Gly	
540 545 550	
tcg tca gag gcc agc ctg gct gca ggt gct ttc ccg ccc cct gag gac	1733
Ser Ser Glu Ala Ser Leu Ala Ala Gly Ala Phe Pro Pro Pro Glu Asp	
555 560 565	
gcc tcc acg cca ttc gcc atc ccg cgc acc tcc agc cta gct cgg gcc	1781
Ala Ser Thr Pro Phe Ala Ile Pro Arg Thr Ser Ser Leu Ala Arg Ala	
570 575 580 585	
aag cgg cca tcg gtc tcc ttc gcg gaa ggt acc aag ttt gca cca cag	1829
Lys Arg Pro Ser Val Ser Phe Ala Glu Gly Thr Lys Phe Ala Pro Gln	
590 595 600	
agt cgc cga agc tca ggg gag ctc tcc agc ccg ctc cga aag ccc aag	1877
Ser Arg Arg Ser Ser Gly Glu Leu Ser Ser Pro Leu Arg Lys Pro Lys	
605 610 615	
agg ctc tcc cgg ggg gcg cag tcg ggt cct gag ggc cgg gaa gcc gaa	1925
Arg Leu Ser Arg Gly Ala Gln Ser Gly Pro Glu Gly Arg Glu Ala Glu	
620 625 630	
gag tcc aca ggc cca gag gaa gca gaa gcc ccc gag tcc ttt ccg gcg	1973
Glu Ser Thr Gly Pro Glu Glu Ala Glu Ala Pro Glu Ser Phe Pro Ala	
635 640 645	
gct gcc agt ccc ggg gat tca gcc act ggc cac cgg cgg ccc cca ctt	2021
Ala Ala Ser Pro Gly Asp Ser Ala Thr Gly His Arg Arg Pro Pro Leu	
650 655 660 665	
ggg ggc cgg aca gtg gct gag cac gtg gaa gcc att gag ggc agc gtc	2069
Gly Gly Arg Thr Val Ala Glu His Val Glu Ala Ile Glu Gly Ser Val	
670 675 680	
cag gag agc tcg ggc cct gtg acc acg atc tac atg ctg gca ggg aag	2117
Gln Glu Ser Ser Gly Pro Val Thr Thr Ile Tyr Met Leu Ala Gly Lys	
685 690 695	
ccc cgc gga tcc gaa ggc cct gtc cgc tct gtc ttc cgc cat ttt ggt	2165
Pro Arg Gly Ser Glu Gly Pro Val Arg Ser Val Phe Arg His Phe Gly	
700 705 710	
agc ttc cag aaa ggc cag gcg gaa gcc aag gtc aag agg gcc atc cct	2213
Ser Phe Gln Lys Gly Gln Ala Glu Ala Lys Val Lys Arg Ala Ile Pro	
715 720 725	
aag cct ccg cgc cag gcc ctg aat cgg aaa aag ggc agc cct ggc ctt	2261
Lys Pro Pro Arg Gln Ala Leu Asn Arg Lys Lys Gly Ser Pro Gly Leu	
730 735 740 745	

gcc tct ggc tct gtc ggc cag agc ccc aac tca gcc cca aaa gct ggg 2309
 Ala Ser Gly Ser Val Gly Gln Ser Pro Asn Ser Ala Pro Lys Ala Gly
 750 755 760

ctt cct ggg gcc aca ggg cct atg gca gtc aga cca gag gaa gcg gtc 2357
 Leu Pro Gly Ala Thr Gly Pro Met Ala Val Arg Pro Glu Glu Ala Val
 765 770 775

cgg ggg ctg ggg gct ggc acc gag agt tca agg aga gcc cag gag cca 2405
 Arg Gly Leu Gly Ala Gly Thr Glu Ser Ser Arg Arg Ala Gln Glu Pro
 780 785 790

gtc tct ggc tgt ggc tcc cca gaa cag gat ccc cag aag cag gct gaa 2453
 Val Ser Gly Cys Gly Ser Pro Glu Gln Asp Pro Gln Lys Gln Ala Glu
 795 800 805

gag gaa agg cag gag gaa cct gag tat gag aat gtt gta ccc atc tcc 2501
 Glu Glu Arg Gln Glu Pro Glu Tyr Glu Asn Val Val Pro Ile Ser
 810 815 820 825

agg cca cca gaa ccc tga tgaccttgaa tttggggagt ggggagagtg 2549
 Arg Pro Pro Glu Pro
 830

gatggactag actgtgctgt gtgctggaaa atgatcccg ggccaggaca gacaaaccag 2609

agcctctgcg cctccacagg gaaaaggcaa ggcttccagg ccagttggcc caggcccctg 2669

gcagtgtccc cggagggggcc caggaaggcc tgggcagaga ccctgtagga tggggtcagg 2729

aagggttgcc tgcagggact tttgtctctgc tgtcctggac cctgtgtgcc tcataagggc 2789

tattctttct ttcacgtgca aaacattttt ctgaaatagc aaacaaccta catgtttgct 2849

gataaaaagat tggctaaaca aatttttttt ttttttttg agacagaatc toccctctgtc 2909

cccagggctg gagtgcagtg gtgcgatctc ggctcactgc aagctctgcc tcccgggttc 2969

acgcccttct cctgcctcag cctcccgagt agctgggact acaggtgccc tccaccacgc 3029

ttggctaatt tttttgtata tttaatagag acagggtttc accatgtag ccaggatggt 3089

ctcgatctcc tgacctcgtg atccacctgc ctgggcctcc caaagtgtg ggatgacagg 3149

catgagccac cagcctggt ctatgaactt tttaaaaagg atgtatgtgt ataaaaacag 3209

attcaaggga aaggcactaa atggtttttt cctctggaag atgagattgt aggtgatatt 3269

tattttcttc tgaaactttt gtatagtttg caaattttct acagtgaaca ttctttttta 3329

cttttgttac tagattgaat ttgataaagt ataataaaaa gcaatgatct ttgttaaaaa 3389

aataaaaagt actaacatta cag 3412

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20 25 30

Ser Ser Pro Ser Ala Glu Leu Gln Cys Cys Ala Gly Trp Arg Gln Lys
35 40 45

Asp Gln Glu Cys Thr Ile Pro Ile Cys Glu Gly Pro Asp Ala Cys Gln
50 55 60

Lys Asp Glu Val Cys Val Lys Pro Gly Leu Cys Arg Cys Lys Pro Gly
65 70 75 80

Phe Phe Gly Ala His Cys Ser Ser Arg Cys Pro Gly Gln Tyr Trp Gly
85 90 95

Pro Asp Cys Arg Glu Ser Cys Pro Cys His Pro His Gly Gln Cys Glu
100 105 110

Pro Ala Thr Gly Ala Cys Gln Cys Gln Ala Asp Arg Trp Gly Ala Arg
115 120 125

Cys Glu Phe Pro Cys Ala Cys Gly Pro His Gly Arg Cys Asp Pro Ala
130 135 140

Thr Gly Val Cys His Cys Glu Pro Gly Trp Trp Ser Ser Thr Cys Arg
145 150 155 160

Arg Pro Cys Gln Cys Asn Thr Ala Ala Ala Arg Cys Glu Gln Ala Thr
165 170 175

Gly Ala Cys Val Cys Lys Pro Gly Trp Trp Gly Arg Arg Cys Ser Phe
180 185 190

Arg Cys Asn Cys His Gly Ser Pro Cys Glu Gln Asp Ser Gly Arg Cys
195 200 205

Ala Cys Arg Pro Gly Trp Trp Gly Pro Glu Cys Gln Gln Gln Cys Glu
210 215 220

Cys Val Arg Gly Arg Cys Ser Ala Ala Ser Gly Glu Cys Thr Cys Pro
225 230 235 240

Pro Gly Phe Arg Gly Ala Arg Cys Glu Leu Pro Cys Pro Ala Gly Ser
245 250 255

His Gly Val Gln Cys Ala His Ser Cys Gly Arg Cys Lys His Asn Glu
260 265 270

Pro Cys Ser Pro Asp Thr Gly Ser Cys Glu Ser Cys Glu Pro Gly Trp
275 280 285

Asn Gly Thr Gln Cys Gln Gln Pro Cys Leu Pro Gly Thr Phe Gly Glu
290 295 300

Ser Cys Glu Gln Gln Cys Pro His Cys Arg His Gly Glu Ala Cys Glu
305 310 315 320

Pro Asp Thr Gly His Cys Gln Arg Cys Asp Pro Gly Trp Leu Gly Pro
325 330 335

Arg Cys Glu Asp Pro Cys Pro Thr Gly Thr Phe Gly Glu Asp Cys Gly
340 345 350

Ser Thr Cys Pro Thr Cys Val Gln Gly Ser Cys Asp Thr Val Thr Gly
355 360 365

Asp Cys Val Cys Ser Ala Gly Tyr Trp Gly Pro Ser Cys Asn Ala Ser
370 375 380

Cys Pro Ala Gly Phe His Gly Asn Asn Cys Ser Val Pro Cys Glu Cys
385 390 395 400

Pro Glu Gly Leu Cys His Pro Val Ser Gly Ser Cys Gln Pro Gly Ser
405 410 415

Gly Ser Arg Asp Thr Ala Leu Ile Ala Gly Ser Leu Val Pro Leu Leu
420 425 430

Leu Leu Phe Leu Gly Leu Ala Cys Cys Ala Cys Cys Cys Trp Ala Pro
435 440 445

Arg Ser Asp Leu Lys Asp Arg Pro Ala Arg Asp Gly Ala Thr Val Ser
450 455 460

Arg Met Lys Leu Gln Val Trp Gly Thr Leu Thr Ser Leu Gly Ser Thr
465 470 475 480

Leu Pro Cys Arg Ser Leu Ser Ser His Lys Leu Pro Trp Val Thr Val
485 490 495

Ser His His Asp Pro Glu Val Pro Phe Asn His Ser Phe Ile Glu Pro
 500 505 510

Pro Ser Ala Gly Trp Ala Thr Asp Asp Ser Phe Ser Ser Asp Pro Glu
 515 520 525

Ser Gly Glu Ala Asp Glu Val Pro Ala Tyr Cys Val Pro Pro Gln Glu
 530 535 540

Gly Met Val Pro Val Ala Gln Ala Gly Ser Ser Glu Ala Ser Leu Ala
 545 550 555 560

Ala Gly Ala Phe Pro Pro Pro Glu Asp Ala Ser Thr Pro Phe Ala Ile
 565 570 575

Pro Arg Thr Ser Ser Leu Ala Arg Ala Lys Arg Pro Ser Val Ser Phe
 580 585 590

Ala Glu Gly Thr Lys Phe Ala Pro Gln Ser Arg Arg Ser Ser Gly Glu
 595 600 605

Leu Ser Ser Pro Leu Arg Lys Pro Lys Arg Leu Ser Arg Gly Ala Gln
 610 615 620

Ser Gly Pro Glu Gly Arg Glu Ala Glu Glu Ser Thr Gly Pro Glu Glu
 625 630 635 640

Ala Glu Ala Pro Glu Ser Phe Pro Ala Ala Ala Ser Pro Gly Asp Ser
 645 650 655

Ala Thr Gly His Arg Arg Pro Pro Leu Gly Gly Arg Thr Val Ala Glu
 660 665 670

His Val Glu Ala Ile Glu Gly Ser Val Gln Glu Ser Ser Gly Pro Val
 675 680 685

Thr Thr Ile Tyr Met Leu Ala Gly Lys Pro Arg Gly Ser Glu Gly Pro
 690 695 700

Val Arg Ser Val Phe Arg His Phe Gly Ser Phe Gln Lys Gly Gln Ala
 705 710 715 720

Glu Ala Lys Val Lys Arg Ala Ile Pro Lys Pro Pro Arg Gln Ala Leu
 725 730 735

Asn Arg Lys Lys Gly Ser Pro Gly Leu Ala Ser Gly Ser Val Gly Gln
740 745 750

Ser Pro Asn Ser Ala Pro Lys Ala Gly Leu Pro Gly Ala Thr Gly Pro
755 760 765

Met Ala Val Arg Pro Glu Glu Ala Val Arg Gly Leu Gly Ala Gly Thr
770 775 780

Glu Ser Ser Arg Arg Ala Gln Glu Pro Val Ser Gly Cys Gly Ser Pro
785 790 795 800

Glu Gln Asp Pro Gln Lys Gln Ala Glu Glu Glu Arg Gln Glu Glu Pro
805 810 815

Glu Tyr Glu Asn Val Val Pro Ile Ser Arg Pro Pro Glu Pro
820 825 830

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Met Thr Phe
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gat gac aag atg aag cct gcg aat gac gag cct gat cag aag tca tgt 104
Asp Asp Lys Met Lys Pro Ala Asn Asp Glu Pro Asp Gln Lys Ser Cys
5 10 15

ggc aag aag cct aaa ggt ctg cat ttg ctt tcc tcc cca tgg tgg ttc 152
Gly Lys Lys Pro Lys Gly Leu His Leu Leu Ser Ser Pro Trp Trp Phe
20 25 30 35

cct gct gct atg act ctg gtc atc ctc tgc ctg gtg ttg tca gtg acc 200
Pro Ala Ala Met Thr Leu Val Ile Leu Cys Leu Val Leu Ser Val Thr
40 45 50

ctt att gta cag tgg aca caa tta cgc cag gta tct gac ctc tta aaa 248
Leu Ile Val Gln Trp Thr Gln Leu Arg Gln Val Ser Asp Leu Leu Lys
55 60 65

caa tac caa gcg aac ctt act cag cag gat cgt atc ctg gaa ggg cag 296
Gln Tyr Gln Ala Asn Leu Thr Gln Gln Asp Arg Ile Leu Glu Gly Gln
70 75 80

atg tta gcc cag cag aag gca gaa aac gct tca cag gaa tca aag aag 344
Met Leu Ala Gln Gln Lys Ala Glu Asn Ala Ser Gln Glu Ser Lys Lys
85 90 95

gaa ctg aaa gga aag ata gac acc ctc acc cag aag ctg aat gag aaa 392
Glu Leu Lys Gly Lys Ile Asp Thr Leu Thr Gln Lys Leu Asn Glu Lys
100 105 110 115

tcc aaa gag cag gag gag ctt cta cag aag aat cag aac ctc caa gaa Ser Lys Glu Gln Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu 120 125 130	440
gcc ctg caa aga gct gca aac tct tca gag gag tcc cag aga gaa ctc Ala Leu Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln Arg Glu Leu 135 140 145	488
aag gga aag ata gac acc atc acc cgg aag ctg gac gag aaa tcc aaa Lys Gly Lys Ile Asp Thr Ile Thr Arg Lys Leu Asp Glu Lys Ser Lys 150 155 160	536
gag cag gag gag ctt ctg cag atg att cag aac ctc caa gaa gcc ctg Glu Gln Glu Glu Leu Leu Gln Met Ile Gln Asn Leu Gln Glu Ala Leu 165 170 175	584
cag aga gct gca aac tct tca gag gag tcc cag aga gaa ctc aag gga Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln Arg Glu Leu Lys Gly 180 185 190 195	632
aag ata gac acc ctc acc ttg aag ctg aac gag aaa tcc aaa gag cag Lys Ile Asp Thr Leu Thr Leu Lys Leu Asn Glu Lys Ser Lys Glu Gln 200 205 210	680
gag gag ctt cta cag aag aat cag aac ctc caa gaa gcc ctg caa aga Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu Ala Leu Gln Arg 215 220 225	728
gct gca aac ttt tca ggt cct tgt cca caa gac tgg ctc tgg cat aaa Ala Ala Asn Phe Ser Gly Pro Cys Pro Gln Asp Trp Leu Trp His Lys 230 235 240	776
gaa aac tgt tac ctc ttc cat ggg ccc ttt agc tgg gaa aaa aac cgg Glu Asn Cys Tyr Leu Phe His Gly Pro Phe Ser Trp Glu Lys Asn Arg 245 250 255	824
cag acc tgc caa tct ttg ggt ggc cag tta cta caa att aat ggt gca Gln Thr Cys Gln Ser Leu Gly Gly Gln Leu Leu Gln Ile Asn Gly Ala 260 265 270 275	872
gat gat ttg aca ttc atc tta caa gca att tcc cat acc acc tcc ccg Asp Asp Leu Thr Phe Ile Leu Gln Ala Ile Ser His Thr Thr Ser Pro 280 285 290	920
ttc tgg att gga ttg cat cgg aag aag cct ggc caa cca tgg cta tgg Phe Trp Ile Gly Leu His Arg Lys Lys Pro Gly Gln Pro Trp Leu Trp 295 300 305	968
gag aat gga act cct ttg aat ttt caa ttc ttt aag acc agg ggc gtt Glu Asn Gly Thr Pro Leu Asn Phe Gln Phe Phe Lys Thr Arg Gly Val 310 315 320	1016
tct tta cag cta tat tca tca ggc aac tgt gca tac ctt caa gac gga Ser Leu Gln Leu Tyr Ser Ser Gly Asn Cys Ala Tyr Leu Gln Asp Gly 325 330 335	1064
gct gtg ttc gct gaa aac tgc att cta att gca ttc agc ata tgt cag Ala Val Phe Ala Glu Asn Cys Ile Leu Ile Ala Phe Ser Ile Cys Gln 340 345 350 355	1112

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 gtatttggtg atgccatttg ggttggtttt gtctgggggc acctacaaat aaagctgcta 2959
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Lys Ser Cys Gly Lys Lys Pro Lys Gly Leu His Leu Leu Ser Ser Pro
 20 25 30

Trp Trp Phe Pro Ala Ala Met Thr Leu Val Ile Leu Cys Leu Val Leu
 35 40 45

Ser Val Thr Leu Ile Val Gln Trp Thr Gln Leu Arg Gln Val Ser Asp
 50 55 60

Leu Leu Lys Gln Tyr Gln Ala Asn Leu Thr Gln Gln Asp Arg Ile Leu
 65 70 75 80

Glu Gly Gln Met Leu Ala Gln Gln Lys Ala Glu Asn Ala Ser Gln Glu
 85 90 95

Ser Lys Lys Glu Leu Lys Gly Lys Ile Asp Thr Leu Thr Gln Lys Leu
100 105 110

Asn Glu Lys Ser Lys Glu Gln Glu Glu Leu Leu Gln Lys Asn Gln Asn
115 120 125

Leu Gln Glu Ala Leu Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln
130 135 140

Arg Glu Leu Lys Gly Lys Ile Asp Thr Ile Thr Arg Lys Leu Asp Glu
145 150 155 160

Lys Ser Lys Glu Gln Glu Glu Leu Leu Gln Met Ile Gln Asn Leu Gln
165 170 175

Glu Ala Leu Gln Arg Ala Ala Asn Ser Ser Glu Glu Ser Gln Arg Glu
180 185 190

Leu Lys Gly Lys Ile Asp Thr Leu Thr Leu Lys Leu Asn Glu Lys Ser
195 200 205

Lys Glu Gln Glu Glu Leu Leu Gln Lys Asn Gln Asn Leu Gln Glu Ala
210 215 220

Leu Gln Arg Ala Ala Asn Phe Ser Gly Pro Cys Pro Gln Asp Trp Leu
225 230 235 240

Trp His Lys Glu Asn Cys Tyr Leu Phe His Gly Pro Phe Ser Trp Glu
245 250 255

Lys Asn Arg Gln Thr Cys Gln Ser Leu Gly Gly Gln Leu Leu Gln Ile
260 265 270

Asn Gly Ala Asp Asp Leu Thr Phe Ile Leu Gln Ala Ile Ser His Thr
275 280 285

Thr Ser Pro Phe Trp Ile Gly Leu His Arg Lys Lys Pro Gly Gln Pro
290 295 300

Trp Leu Trp Glu Asn Gly Thr Pro Leu Asn Phe Gln Phe Phe Lys Thr
305 310 315 320

Arg Gly Val Ser Leu Gln Leu Tyr Ser Ser Gly Asn Cys Ala Tyr Leu
325 330 335

Gln Asp Gly Ala Val Phe Ala Glu Asn Cys Ile Leu Ile Ala Phe Ser
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Ile Cys Gln Lys Lys Thr Asn His Leu Gln Ile
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<210> 149 <211> 66 <212> PRT <213> Homo sapiens <400> 149

Met Asn Ala Ala Ala Ser Gly Pro Ser Asn Thr Pro Pro Glu Ile Ala
 1 5 10 15

Ala Ala Arg Ala His Tyr Asn Ile Val Thr Phe Ala Ala Ala Ile Tyr
 20 25 30

Lys Lys Ser Gln His Met Ala Ala Ala Val Asn Ile Arg Asn Cys Cys
 35 40 45

Tyr Ile Ala Ala Ala Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
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Asn Asn
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36

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30

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21

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13

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29

<210> 158 <211> 29 <212> DNA <213> Unknown <220> <223> Primer

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25

<210> 160 <211> 24 <212> DNA <213> Unknown <220> <223> Primer

<400> 160



24

36

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36

acatgcatcc atgtgagagc tctgcttata tagacc

<400> 163

Ile Val Tyr Glu Leu Leu
1 5